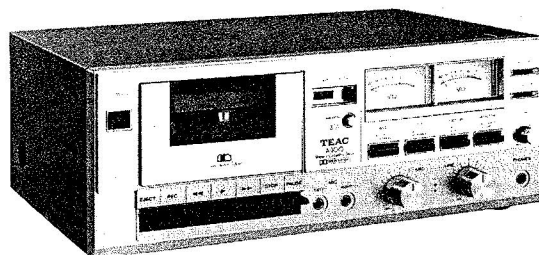


TEAC[®]

SERVICE MANUAL

A-300

Stereo Cassette Deck with Dolby[®] System



NOTE

If any of the adjustments or repairs seem too complicated or are difficult to accomplish, please contact the nearest TEAC Factory Service Department or write directly to a TEAC office, the addresses of which are printed on the back cover of this manual.

When ordering replacement parts, please refer to the PARTS LIST which is printed separately from this manual and included as an insert.

TEAC CORPORATION

51032590

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* Noise reduction circuit made under license from Dolby Laboratories Inc. The word "Dolby" and the Double-D symbol are trademarks of Dolby Laboratories Inc.

1. TEST EQUIPMENT REQUIRED

1. **Cassette Torque Meter:** For take-up check: 0 ~ 100 g·cm (0 ~ 1.4 oz·inch)
 For fast forward & rewind torque checks: 0 ~ 160 g·cm (0 ~ 2.2 oz·inch)
- NOTE: When ordering Cassette Torque Meter, allow for longer delivery time that is required for it.
2. **Spring scale:** For Pinch Roller pressure check: 0 ~ 500 g (1.1 lbs)
3. **Wow/flutter meter:** MEGURO DENPA SOKKI K.K., Model MK-668A
4. **Frequency counter:** Digital type, capable of 10 Hz to 100 kHz indication.
5. **AF oscillator:** 10 Hz ~ 100 kHz
6. **AC Voltmeter:** 0.1 mV ~ 300V
7. **Attenuator:** General Purpose
8. **Distortion analyzer:** Basic frequency 400 Hz/1 kHz
9. **Oscilloscope:** General Purpose
10. **Band-pass filter:** 1 kHz narrow band-pass type
11. **Test load resistor:** Non inductive type 8 ohm/1 W
12. **Plastic alignment tool:**
13. **Head demagnetizer:** TEAC E-3 or equivalent
14. **Cleaner:** TEAC TZ-261 Tape Recorder Cleaner kit or pure alcohol
15. **Oil:** TEAC TZ-255 Oil kit or equivalent

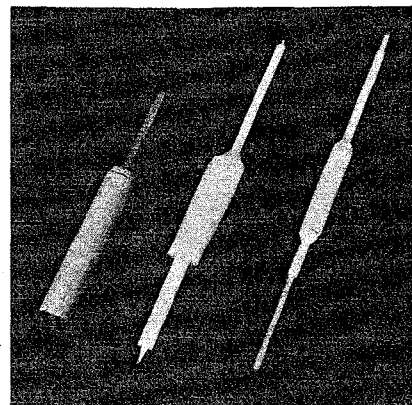


Fig. 1-1 Plastic Alignment Tool

2. SPECIFICATIONS & SERVICE DATA

SPECIFICATIONS

Track System	4-track, 2-channel stereo
3 Heads	Erase, Record and Playback
Type of Tape	Cassette tape, C-60 and C-90 (Philips type)
Tape Speed	4.8 cm/s (1-7/8 ips)
Inputs	MIC: Specified input level: -57 dB (1.09 mV)/10 kohms
(level and impedance)	Min. input level: -67 dB (346 μ V)
	LINE IN: Specified input level: -9 dB (275 mV)/50 kohms
	Min. input level: -19 dB (86.9 mV)
	DIN IN*: Min. input level: -35 dB (13.8 mV)
Outputs	OUTPUT: Max. output level: -2.5 dB (580 mV)/50 kohms
(level and load impedance)	Specified output level: -5 dB (436 mV)
	Headphones: Specified output level: -21 dB (69 mV)/8 ohms
Equalization	CrO ₂ : 3180 μ s + 70 μ s
	NORMAL: 3180 μ s + 120 μ s
Head Configuration	1/2-track, 1-channel Erase Head
	1/4-track, 2-channel Dual-gap Record and Playback Heads
Motor	FG Servo Controlled DC Motor
Bias Frequency	100 kHz
Operating Position	Horizontal
Power Requirements	100/117/220/240 V AC, 50/60 Hz (General Export Models)
	117 V AC, 60 Hz (U.S.A./Canada Models)
	220 V AC, 50 Hz (Europe Model)
	240 V AC, 50 Hz (U.K./Australia Models)
Power Consumption	12W (U.S.A. Model)
	11W (All except U.S.A. Model)
Weight	7.5 kg (16.5 lbs) net
	7.8 kg (17.2 lbs) net (General Export Models for Limited Area)

* Pursuant to DIN Standards

TEAC TEST TAPE

REMARKS: 0 dB = DIN Reference level (333 Hz)

For tape speed & wow/flutter test

MTT-111: For Playback method
3,000 Hz/-10 dB

MTT-501: For record/Playback method (blank tape)

For playback performance alignment

MTT-150: For Dolby level calibration
Dolby B-type tone (400 Hz tone),
200 nWb/m

MTT-316: For frequency response test for EQ: CrO₂
3,180 μ s $\pm$ 70 μ s
315 Hz/-4 dB, 31.5 Hz ~ 14 kHz/-24 dB

MTT-216: For frequency response test for
EQ: NORMAL
3,180 μ s $\pm$ 120 μ s
315 Hz/-4 dB, 31.5 Hz ~ 14 kHz/-24 dB

For record performance alignment (blank tape)

MTT-506 or equivalent: For BIAS & EQ: CrO₂

MTT-501 or equivalent: For BIAS & EQ: NORMAL

NOTE: The TEAC test tapes require longer delivery time than normal parts.



Fig. 2-1 TEAC Test Tape

SERVICE DATA

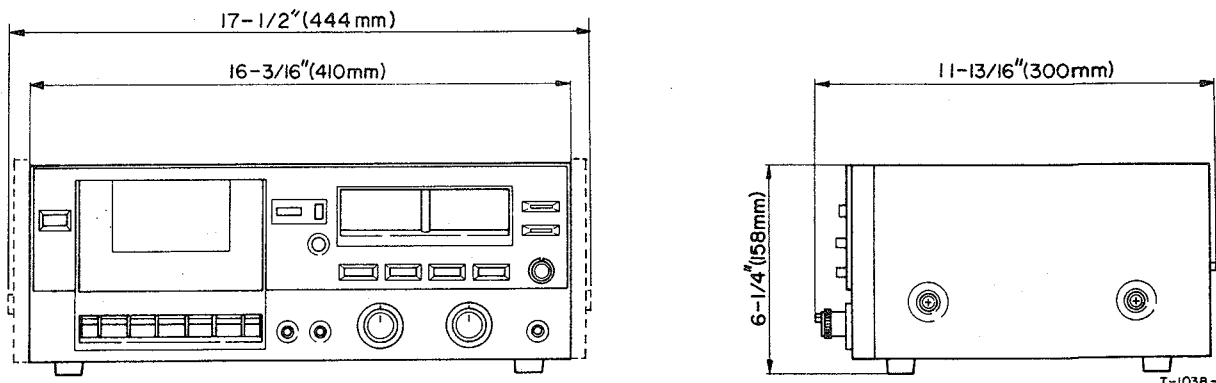
Mechanical

Tape Speed Deviation	3,000 Hz $\pm$ 45 Hz
Tape Speed Drift	45 Hz
Wow and Flutter	Playback: 0.10% (WRMS) Record/Playback: 0.25% (RMS)
Pinch Roller Pressure	400 g $\pm$ 50 g (12.3 to 15.9 oz)
Reel Torque (Take Up)	Play and Rec/Play: 40 to 60 g-cm (0.6 to 0.8 oz-inch) Fast Forward: 80 to 150 g-cm (1.1 to 2.1 oz-inch) Rewind: 100 to 150 g-cm (1.4 to 2.1 oz-inch)
Reel Torque (Back Tension)	Play and Rec/Play: 3 to 8 g-cm (0.04 to 0.11 oz-inch)
Fast Winding Time	90 seconds for C-60

Electrical

Frequency Response	Refer to frequency response limits charts on page 12 and 16.		
Signal to Noise Ratio	Playback method: 47 dB min.		
	Record/Playback method:	BIAS/EQ, CrO ₂	45 dB min.
		BIAS/EQ, NORMAL	44 dB min.
	With Dolby Noise Reduction used for recording and playback, S/N ratio is improved by up to 5 dB at 1 kHz and up to 10 dB at frequencies over 5 kHz.		
Erase Efficiency	65 dB min.		
Channel Separation	30 dB min. (at 1 kHz)		
Crosstalk between Adjacent Tracks	40 dB min. (at 125 kHz)		
Total Harmonic Distortion	BIAS/EQ, CrO ₂ :	2.2% (max.)	
	BIAS/EQ, NORMAL:	2.5% (max.)	

NOTE: • Improvements may result in Specifications and Service Data changes.
• dB values in the Specifications and Service Data are based on 0 dB = 0.775 V. In case the AC Voltmeter being used is calibrated to some other standard such as 0 dB = 1 V etc, please use the voltage values given in parentheses as the test values.



* Broken line indicates General Export Models for Limited Areas.

Fig. 2-2 Dimensions

3. PARTS LOCATION

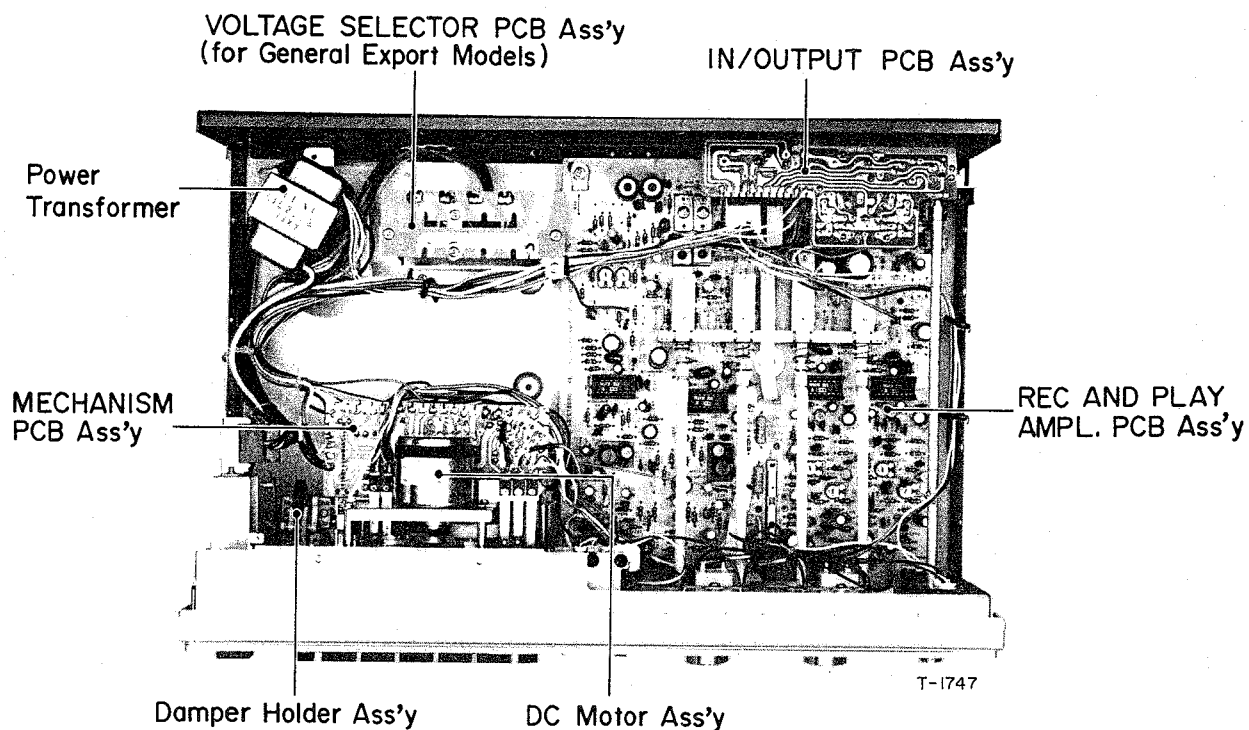


Fig. 3-1 Top View

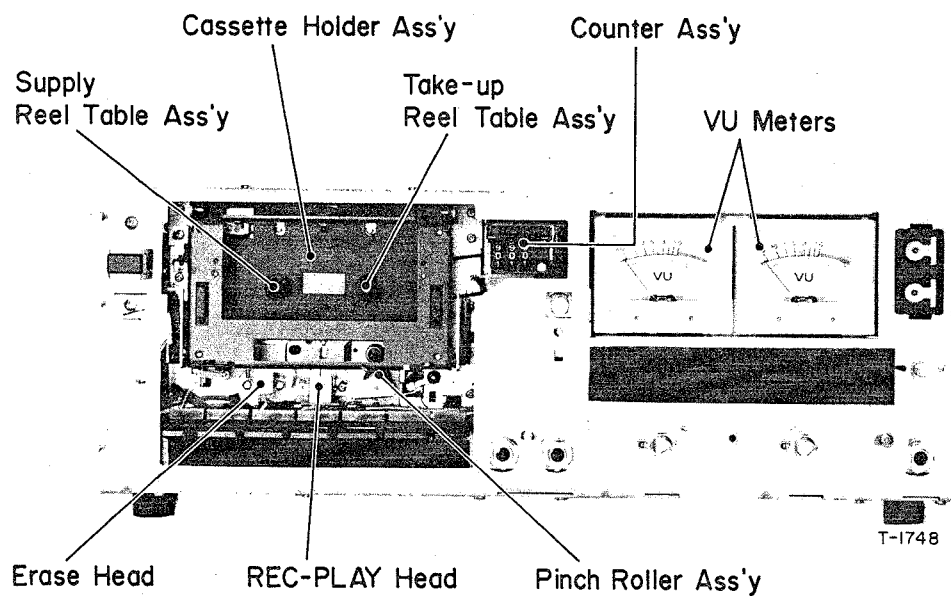


Fig. 3-2 Front View

4. ILLUSTRATED DISASSEMBLY PROCEDURES

GENERAL NOTES

1. Disassemble in number-order.
2. Use the proper tools. Demagnetize the tools before use.
3. When mounting or removing a spring, check the position (direction) of the anchor or hook. The wrong position may change the tension.
4. When reassembling, don't forget to reinstall all hardware such as springs and washers etc.
5. To check the shape of assembling hardware (screws, etc.) see ASSEMBLING HARDWARE CODING LIST in the parts list.

4-1. EXTERNAL PARTS

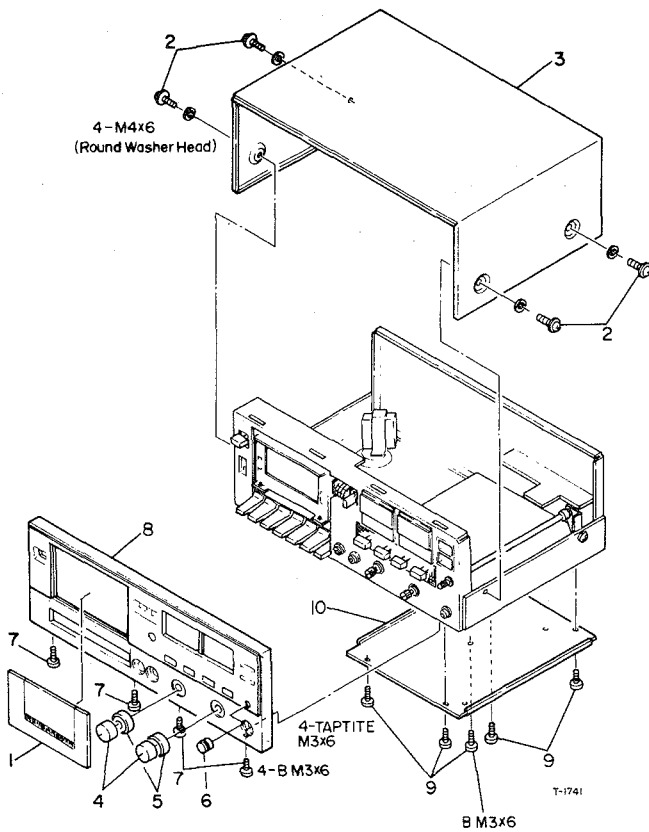


Fig. 4-1 External Parts

4-2. CASSETTE DAMPER (DAMPER CORD STRINGING)

Preparation

Remove in number-order.

1. Fig. 4-1, 2 and 3.

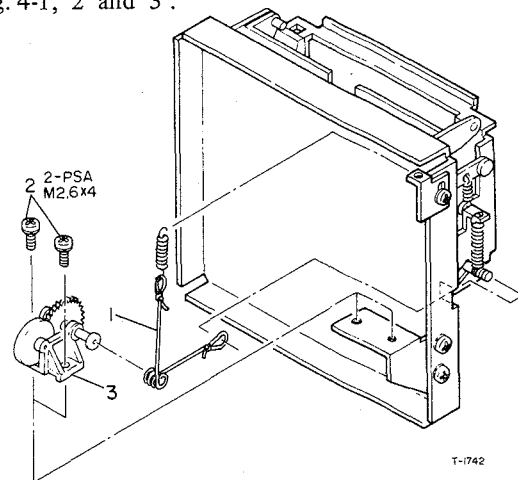


Fig. 4-2 Cassette Damper

4-3. CASSETTE HOLDER ASS'Y

Preparation

Remove in number-order.

1. Fig. 4-1, 1 thru 8.
2. Fig. 4-2, 1.

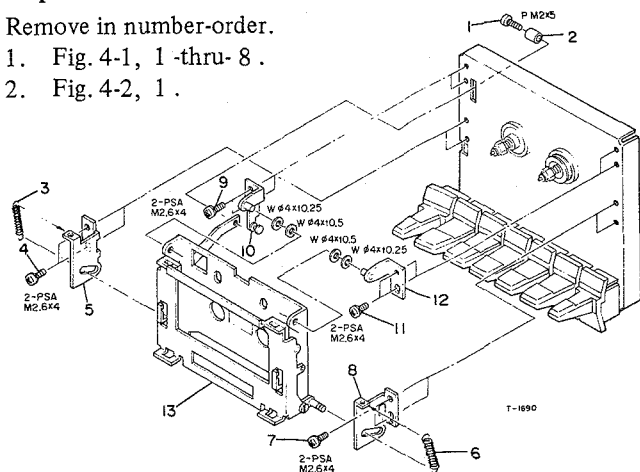


Fig. 4-3 Cassette Holder Ass'y

4.4. HEADS AND PINCH ROLLER

Preparation

Remove in number-order.

1. Fig. 4-1, 1 -thru- 8 .

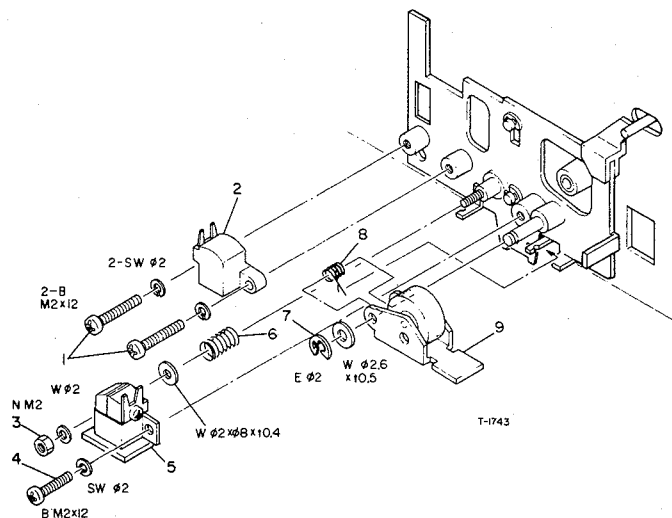


Fig. 4-4 Head/Pinch Roller

ERASE HEAD

REC-PLAY HEAD

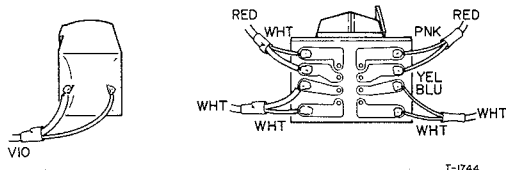


Fig. 4-5 Head Wiring Diagram

- NOTE:
1. After replacing the head, always adjust the head alignment, especially the Record/Playback Head's azimuth and then secure the screws and/or the nut with a drop of locking paint.
 2. Connect the wires to the head terminal pins quickly to prevent breaking of internal wires of the head due to overheating.
 3. After replacement, always clean the driving surfaces of the Pinch Roller with the TEAC TZ-261B Rubber Cleaner or with pure alcohol, then proceed directly to the PINCH ROLLER PRESSURE adjustment section.

4.5. REEL TABLES

Preparation

Remove in number-order.

1. Fig. 4-1, 1 -thru- 8 .
2. Fig. 4-2, 1 .
3. Fig. 4-3, 1 -thru- 13.

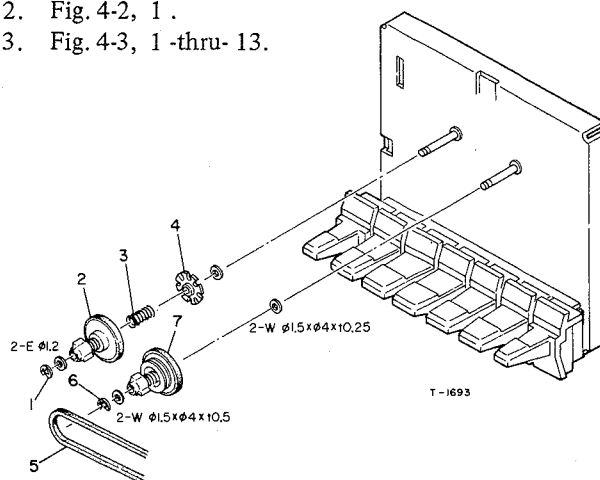


Fig. 4-6 Reel Tables

4.6. BRAKE PLATE ASS'Y

Preparation

Remove in number-order.

1. Fig. 4-1, 1 -thru- 8 .
2. Fig. 4-2, 1 .
3. Fig. 4-3, 1 -thru- 13 .

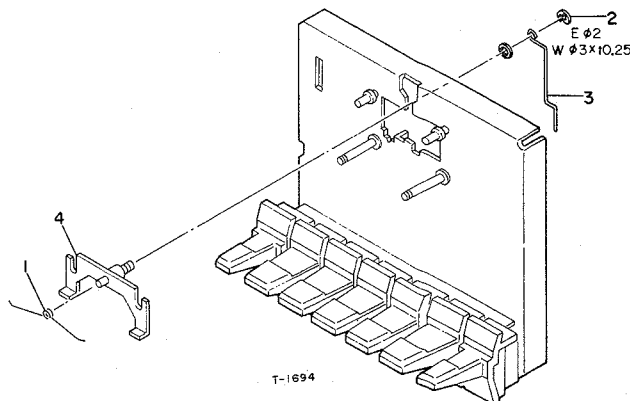


Fig. 4-7 Brake Plate Ass'y

4-7. MOTOR

Preparation

Remove in number-order.

1. Fig. 4-1, 2 and 3.

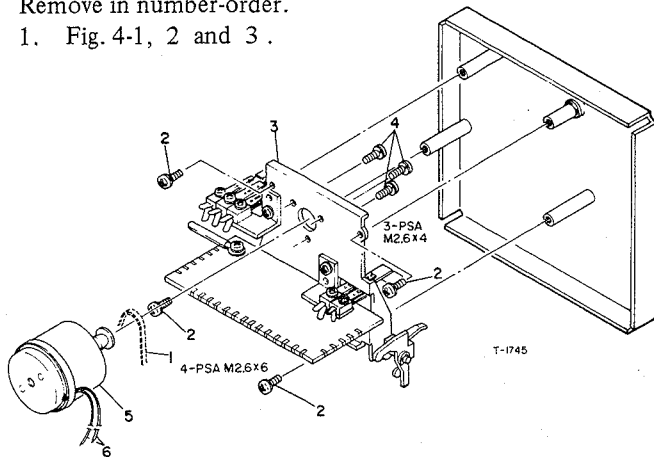


Fig. 4-8 Motor

- NOTE:
1. When re-assembling, clean the pulley and the Belt with TEAC TZ-261 Cleaner kit ("A" for the Pulley, "B" for the Belt) or with pure alcohol.
 2. Take off or remount the Motor Ass'y taking care not to scratch or otherwise damage the Motor Pulley.
 3. When re-attaching the Drive Belt to the Pulley do not twist or stretch the belt.

4-8. CAPSTAN DRIVE ASS'Y

Preparation

Remove in number-order.

1. Fig. 4-1, 1-thru-3.
2. Fig. 4-8, 1-thru-3.

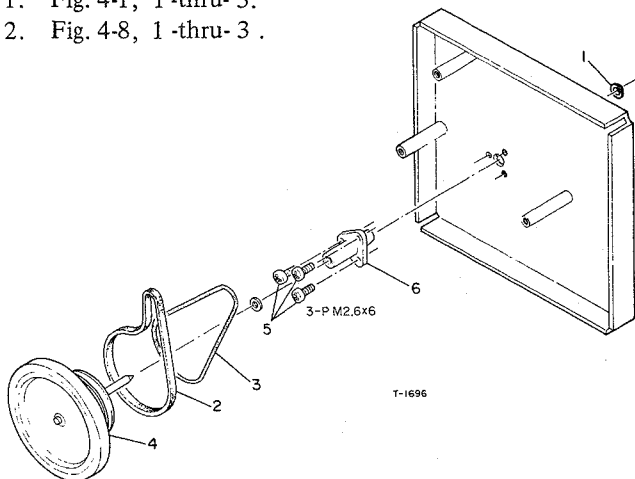


Fig. 4-9 Capstan Drive Ass'y

4-9. LUBRICATION

Refer to Fig. 4-9.

Lubrication should be generally done at about every 1,000 hours of operating time of the tape deck. Use high quality oil for this purpose.

For efficient oiling, it is recommended that lubrication be done after nearly 1 hour of idling of the deck and while it is still warm.

Normally, it is necessary to lubricate only the areas described below.

1. Apply a drop of a light machine oil of good quality (e.g.: TEAC TZ255) with an oil applicator to the shaft of the Flywheel and spread oil evenly over the shaft with a flannel cloth. After installing the Flywheel, be sure to clean the tape moving portion of shaft with TEAC TZ-261 A Head Cleaner or with pure alcohol.
2. Apply a drop of the proper oil in the same way as above to the innermost area of capstan shaft (next to the Flywheel).
3. Apply a film of light grease to the well of the Flywheel Bearing.

4-10. IDLER/TENSION PULLEY ASS'Y

Preparation

Remove in number-order.

1. Fig. 4-1, 2 and 3.
2. Fig. 4-8, 1-thru-3.
3. Fig. 4-9, 1-thru-4.

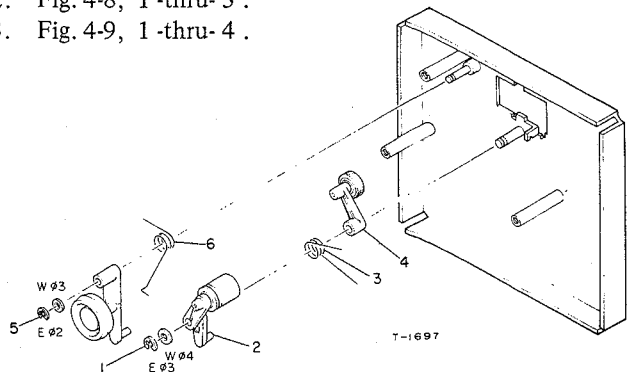


Fig. 4-10 Idler/Tension Pulley Ass'y

5. MECHANICAL CHECKS AND ADJUSTMENTS

5-1. TAKE-UP AND SUPPLY TORQUE

Specifications:

Take-up: 40 to 60 g-cm (0.6 to 0.8 oz-inch)

Supply: 3 to 8 g-cm (0.04 to 0.11 oz-inch)

1. Depress POWER Switch ON to apply AC power.
2. Load the cassette torque meter (for take-up and supply torques).
3. Place the deck in the play mode and read the pointer indication on the right-hand dial scale to check the take-up torque.
4. While continuously playing, read the pointer indication on the left-hand dial scale to check the supply torque.
5. If the reading(s) are out of the specified range, clean the driving surfaces of the reel table ass'y and all other driving parts relative to the take-up and supply torque function with the TEAC TZ-261B rubber cleaner or which pure alcohol.
6. If the above cleaning is ineffective for torque correction, replace the Reel Table Ass'y.

5-2. FAST FORWARD & REWIND TORQUE

Specifications:

Fast Forward torque: 80 to 150 g-cm

(1.1 to 2.1 oz-inch)

Rewind torque: 100 to 150 g-cm (1.4 to 2.1 oz-inch)

1. Depress POWER Switch ON to apply AC power.
2. Load the Cassette Torque Meter (for fast forward and rewind torque).
3. Place the deck in the FF or REW mode and read the pointer indication on the dial scale.
4. The Meter should indicate a torque of 80 to 150 g-cm (1.1 to 2.1 oz-inch) as Fast Forward Torque and 100 to 150 g-cm (1.4 to 2.1 oz-inch) as Rewind Torque.
5. If the indication is out of specified range, clean the driving surfaces of the Reel Table Ass'y and all other driving parts relative to the Fast Forward & Rewind torque function with the TEAC TZ-261B Rubber Cleaner or with pure alcohol.
6. If the above cleaning is ineffective for the torque correction, replace the driving parts relative to these torques.

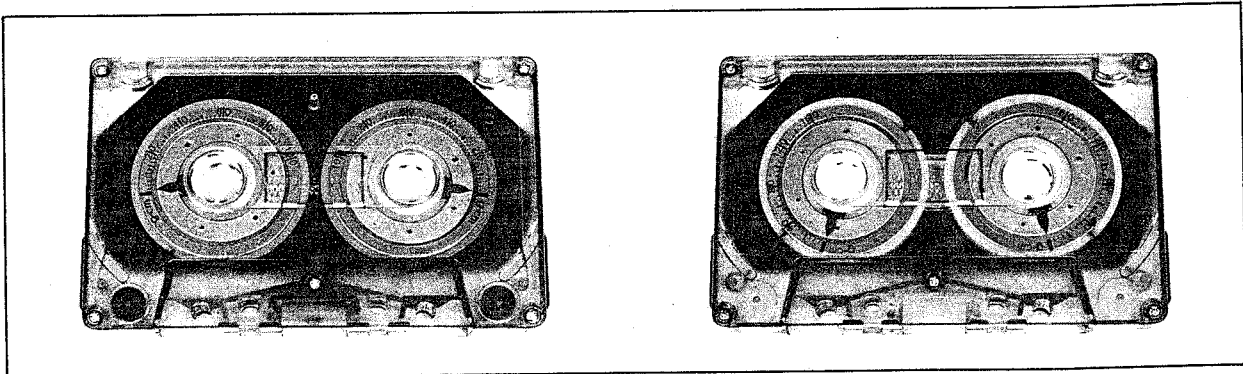


Fig. 5-1 Cassette Torque Meter

5-3. PINCH ROLLER PRESSURE

Specification: 400g $\pm$ 50 g (12.3 to 15.9 oz)

1. Remove Front Panel, then Cassette Holder Ass'y.
2. Depress POWER Switch ON to apply AC power.
3. Place the deck in the PLAY mode with no tape loaded.
4. Attach the spring scale to the Pinch Roller shaft as shown.
5. Gently draw the Pinch Roller away from the Capstan shaft in a directly downward direction until the Capstan shaft and the Pinch Roller are completely separated.
6. Gradually return the scale back until the Pinch Roller just begins to rotate. The scale should then be reading approximately 400 g $\pm$ 50 g (12.3 to 15.9 oz).
7. If the reading is out of specified range, replace the Pinch Roller Ass'y or the Pressure Spring or adjust the Spring Arm as shown.

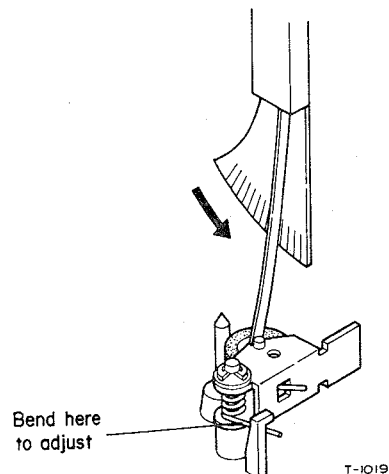


Fig. 5-2 Pinch Roller Pressure Measurement

5-4. TAPE SPEED/WOW AND FLUTTER

Specifications:

Tape Speed Deviation:	3,000 Hz $\pm$ 45 Hz
Tape Speed Drift:	45 Hz
Wow and Flutter:	Playback: 0.10% (WRMS)
	Record/Playback: 0.25% (RMS)

- NOTE: 1. Before performing this adjustment, clean all parts in the tape path, particularly the Capstan, the Pinch Roller and the Heads with the appropriate liquid from the TEAC TZ-261 Cleaner Kit or with pure alcohol.
2. Wow and flutter should be checked in two ways; Playback only and Record/Playback methods. First correct tape speed and wow and flutter using the playback only method. Then measure wow and flutter using record and playback method.
3. As the measured results may vary with respect to location on tape at which it was taken, three points — at beginning, middle and near the end of the tape — should be measured.

5-4-1. TAPE SPEED

1. Connect test equipment to the deck, except the AF oscillator, as shown in Fig. 5-3.
2. Set the EQ switch to NORMAL position, and then load and play a TEAC MTT-111 test tape (3,000 Hz signal is recorded).
3. Adjust the control located at the center of the Motor for reading of 3,000 Hz $\pm$ 10 Hz on the frequency counter.
(NOTE: This tape speed setting should be done after approx. 30 seconds of operating time of the deck).
4. Then, verify the reading on the frequency counter as within the specified range of 3,000 Hz $\pm$ 45 Hz, and the tape speed drift is within 45 Hz at any portion of the tape run.
5. If the tape speed is extremely out of the specification, check the Pinch Roller pressure and the tape driving function for correction, and make sure the tape path is clean.

5-4-2. WOW AND FLUTTER

After making the tape speed measurement, perform the wow and flutter test using the Playback Method and the Record/Playback Method successively.

PLAYBACK METHOD

1. Play the MTT-111 test tape.
2. Read the indication on the wow and flutter meter.
3. The wow and flutter value should be 0.10% WRMS, max.

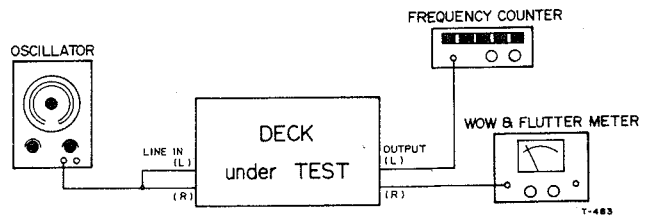
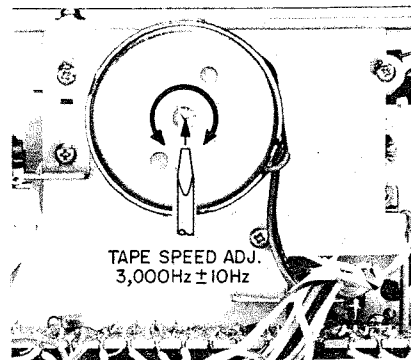


Fig. 5-3 Tape Speed/Wow & Flutter Measurement Setup



T-1679

Fig. 5-4 Tape Speed Adjustment Location

4. If the wow and flutter is out of specification, check the Pinch Roller pressure and the take-up torque, see that the tape path is clean, and that the Capstan Belt is not stretched or oily.
5. If the above checks are ineffective for excessive wow and flutter correction, repair or replace the Pinch Roller, the Capstan Belt and/or any other defective parts.

RECORD/PLAYBACK METHOD

NOTE: When using this method, adopt the maximum wow and flutter value obtained by repeated play and stop modes of operation. This operation is necessary to make sure wow and flutter content between record and playback will not be in phase to create a false reading.

1. Connect test equipment to the deck as shown in Fig. 5-3.
2. Set LINE or RECORD controls on the deck to obtain convenient input levels.
3. Load a TEAC MTT-501 test tape (blank) and set the BIAS/EQ switches in the NORMAL positions.
4. Apply and record a 3,000 Hz signal.
5. Rewind and play this recorded section.
6. Read the indication on the wow and flutter meter.
7. The wow and flutter value should be 0.25% RMS max.
8. If the measured value is out of specification, repair using the same methods as stated in steps 4 — 5 in the Playback Method procedure.

6. ELECTRICAL CHECKS AND ADJUSTMENTS

GENERAL NOTES

- Before performing adjustments on the amplifier section of this deck, thoroughly clean and demagnetize the entire tape path, particularly erase head, record/playback head, capstan shaft and pinch roller.
- Make sure the deck is set for the proper voltage and frequency for your locality.
- In general, checks and adjustments for other than specified items, are done in the sequence of left channel then right channel. Double designated REF. NO. indicates left channel/right channel (example: VR101/201).
- dB values in this test procedure are based on 0 dB = 0.775 V. In case the AC Voltmeter being used is calibrated to some other standard such as 0 dB = 1 V etc, please use the voltage values given in parentheses as the test values.
- The AC Voltmeter used in the procedures, including the measurement at Dolby test points, must have load impedance of 1M ohm or more.
- To correctly complete these performance checks, keep the order as explained in this chapter.

NOTES CONCERNING PREPARATIONS

To fully understand the contents of the Preparations in the boxed-in area, note these points.

- For each procedure, make the initial equipment test set up, connections and switch/control settings as shown in the associated illustrations, then follow the steps in the procedure.
- Each of the switch settings marked with hyphen (-) in the Switch Setting chart have no effect on the procedures.

6-1. PLAYBACK PERFORMANCE

NOTE: All alignments in the PLAYBACK PERFORMANCE only have to be done with EQ switch set to CrO₂ position unless there is a special reason which requires that other positions also be checked.

6-1-1. RECORD-PLAYBACK HEAD AZIMUTH ADJUSTMENTS

- Load and play a TEAC MTT-150 test tape.
- Make sure the phase relationship between the 2 signals (left channel and right channel) is within 45° on the oscilloscope.
- Load a TEAC MTT-316 test tape.
- Play the 10 kHz signal section of the tape.
- Adjust the azimuth adjusting nut for the greatest output level.
- After adjustment is made, apply a drop of locking paint to the adjustment nut.

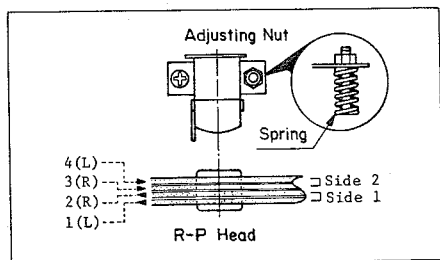


Fig. 6-2 Head Azimuth Adjustment Location

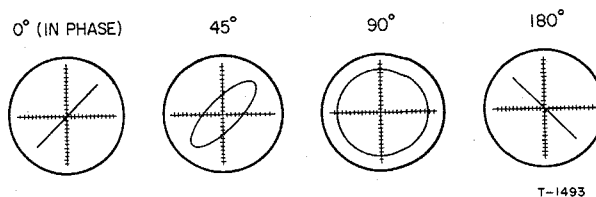
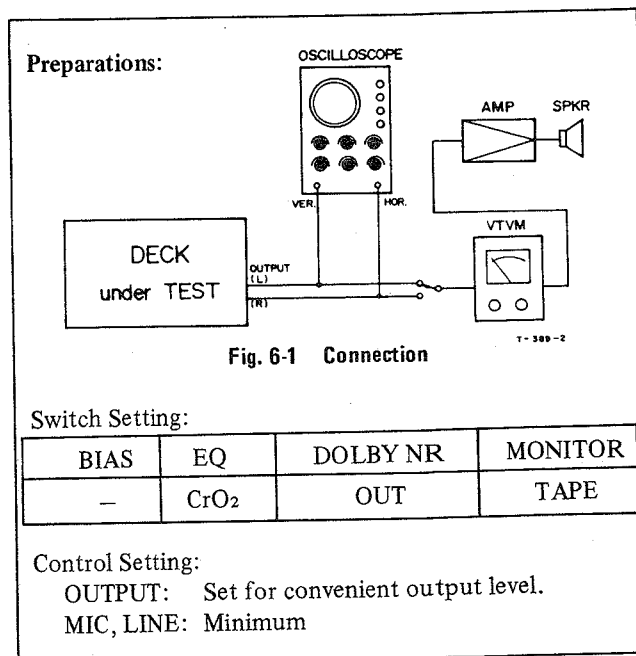


Fig. 6-3 Confirming Phase Relationship

6-1-2. SPECIFIED OUTPUT LEVEL SETTING

Specifications:

Specified output level: -5 dB (436 mV)
 Maximum output level: $-2.5 \text{ dB} \pm 2 \text{ dB}$ (461 mV to 731 mV)

1. Load and play a TEAC MTT-150 test tape.
2. Adjust R10/R20 for 580 mV (-2.5 dB) on AC Voltmeter connected to the Dolby test points. (Fig. 6-4)
3. Change the AC Voltmeter connection to the OUTPUT jacks as shown in Fig. 6-5.
4. Set the OUTPUT controls to maximum and confirm that $-2.5 \text{ dB} \pm 2 \text{ dB}$ (461 mV to 731 mV) is obtained at OUTPUT jacks.
5. Set OUTPUT controls again for -5 dB (436 mV) specified level.

The position of the OUTPUT controls will now be set to the specified output level setting. Do not change the setting of these controls for the remainder of this procedure unless otherwise indicated.

6-1-3. VU METER CALIBRATION

Specification: +3 VU

6. With the specified setting in paragraph 6-1-2, play the MTT-150 test tape and adjust R70/R80 for +3 VU indication on the VU Meters.

6-1-4. FREQUENCY RESPONSE —PLAYBACK—

7. Load and play the MTT-316 test tape.
8. Play the 315 Hz section of the test tape to get a reference level on the AC Voltmeter. Then play the required test signals for comparison with the playback Frequency Response Limits chart. (Fig. 6-6)
9. Adjust R11/R21 so that the readings obtained on the AC Voltmeter will be within the response limits.

NOTE: If the response does not meet the specified response limits, the head should be checked for accumulated oxide or dirt. Then, if no dirt is found, the head azimuth should be readjusted.

Preparations:

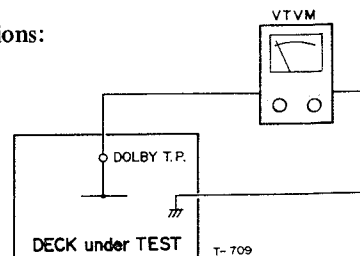


Fig. 6-4 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
—	CrO ₂	OUT	TAPE

Control Setting:

OUTPUT: Set for convenient output level.
 MIC, LINE: Minimum

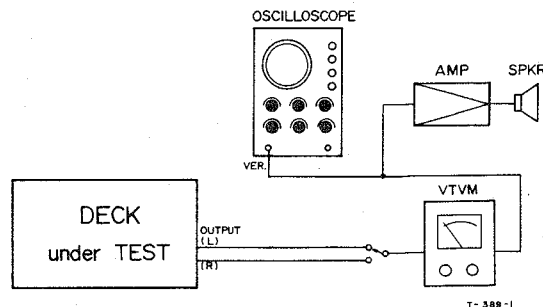


Fig. 6-5 Connection

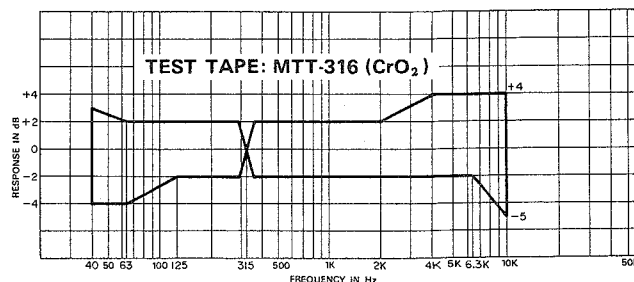


Fig. 6-6 Playback Frequency Response Limits

6-1-5. SIGNAL TO NOISE RATIO –PLAYBACK–

Specification: 47 dB (min.)

1. Place the deck in the PLAY PAUSE mode with no tape loaded.
2. Read the indication on the AC Voltmeter.
3. Compare this reading to the specified output level of -5 dB (436 mV). The difference shall be 47 dB or more.

Preparations:

Connection: See Fig. 6-5.

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
—	NORMAL	OUT	TAPE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)

MIC, LINE: Minimum

6-1-6. HEADPHONE OUTPUT LEVEL CHECKS

Specification: -21 dB $\pm$ 3 dB (48.9 mV to 97.5 mV)

NOTE: An 8 ohm non-inductive resistor should be used as the test load resistor.

1. Load and play a TEAC MTT-150 test tape.
2. Measure the level across the test load resistor.
3. Level shall be -21 dB $\pm$ 3 dB (48.9 mV to 97.5 mV).

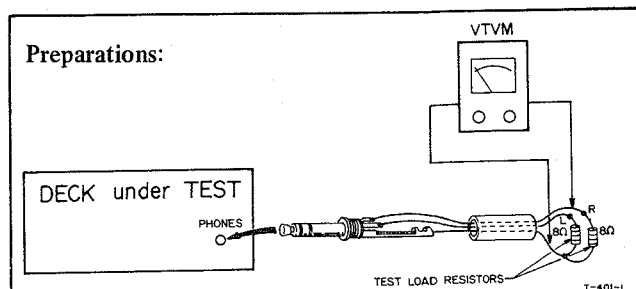


Fig. 6-7 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
—	NORMAL	OUT	TAPE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)

MIC, LINE: Minimum

6-2. MONITOR PERFORMANCE

6-2-1. MINIMUM INPUT LEVEL CHECKS

Specifications:

LINE: -19 dB $\pm$ 3 dB (61.5 mV to 123 mV)

MIC: -67 dB $\pm$ 3 dB (245 μ V to 489 μ V)

DIN: -35 dB $\pm$ 3 dB (9.75 mV to 19.5 mV)

NOTE: To prevent mis-measurements for the following procedures, any connection cords other than these for the respective input check must be removed. For example: Do not connect the Microphone and the DIN cords to respective input jacks when checking for the LINE inputs.

1. Load any recordable tape.
2. Place the deck in the REC PAUSE model.
3. Set the LINE controls to maximum.

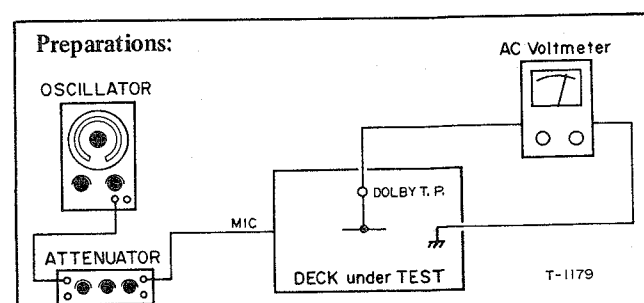


Fig. 6-8 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
—	—	OUT	SOURCE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)

MIC, LINE: Minimum

4. Apply a 400 Hz signal at -19 dB (86.9 mV) to the LINE IN jacks and check for -2.5 dB $\pm$ 3 dB (411 mV to 818 mV).
5. Then if the level difference between channels is more than 2 dB, adjust R22 so that the level difference become less than 2 dB between channels. (Minimum Input Level checks for the LINE inputs).
6. Set the LINE controls to minimum and the MIC controls to maximum.
7. Apply a 400 Hz signal at -67 dB (346 μ V) to the MIC jacks and check for 2.5 dB $\pm$ 3 dB. (Minimum Input Level checks for the MIC jack).
8. Remove the MIC input and apply a 400 Hz signal at -35 dB (13.8 mV) to the input terminals of the DIN connector and check for -2.5 dB $\pm$ 3 dB. (Minimum Input Level checks for the DIN inputs).
9. For the following test, set the MIC controls to minimum, remove the DIN connector and then connect input signal to the LINE IN jacks.

6-2.2. SPECIFIED LINE CONTROL SETTING

Specification: Specified input level: -9 dB (275 mV)

10. Apply a 400 Hz signal at -9 dB (275 mV) to the LINE IN jacks.
11. Set the LINE controls to obtain the reading of 580 mV (-2.5 dB) on the AC Voltmeter. Then check that OUTPUT level on the deck is -5 dB $\pm$ 1 dB (388 mV to 489 mV). At this time, the physical position of the LINE controls indicates the Specified LINE Control Setting referred to in subsequent procedures.

NOTE: After this setting is done, do not disturb the Specified Control Setting of the LINE controls until the remaining checks and adjustments are completed.

6-2.3. VU METER CALIBRATION CHECKS

Specification: $+3$ VU $\pm$ 1 VU

12. Make certain that indication on the VU Meter on the deck is $+3$ VU $\pm$ 1 VU.

6-3. RECORDING PERFORMANCE

- NOTE:**
1. Before marking any adjustments of the recording circuit, be sure that the tests in the preceding performance sections have been accomplished. The preceding performance should be properly adjusted, otherwise record calibration will be inaccurate.
 2. The adjustments and checks for NORMAL tape usually may be omitted unless the technician wishes to confirm that they also are within specifications except for the sections where these tape are designated.

6-3.1. BIAS TRAP ADJUSTMENTS

NOTE: The AC Voltmeter used in this procedure must have load impedance of 1M ohm or more.

1. Connect the AC Voltmeter to the BIAS TRAP test point.
2. Load any recordable tape.
3. Place the deck in the REC PAUSE mode with no signal applied.
4. Adjust L103/L203 for a minimum reading.

Preparations:

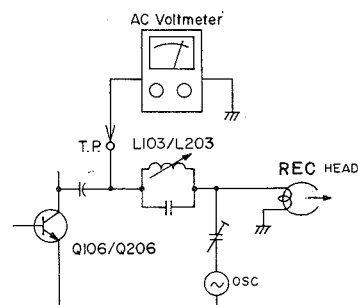


Fig. 6-9 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
—	—	—	—

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)
MIC, LINE: Minimum

6-3-2. RECORD BIAS SETTING

CrO₂ Tape

1. Connect the deck and the test equipments as shown in Fig. 6-10.
2. Load a TEAC MTT-506 test tape.
3. Set the attenuator so that the input to the deck is -42 dB (6.15 mV).
4. Initially turn the C164/C264 in a counter clockwise direction until the capacitor leaf springs open completely.
5. Record a 6.3 kHz test tone.
6. During simultaneous tape monitoring (playing), turn the C164/C264 slowly clockwise so that the output reading on the AC voltmeter rises slowly, reaches a peak, and then begin to decrease again. Set both Trimmer capacitors for $2.5 \text{ dB} \pm 1 \text{ dB}$ beyond and below the peak level.

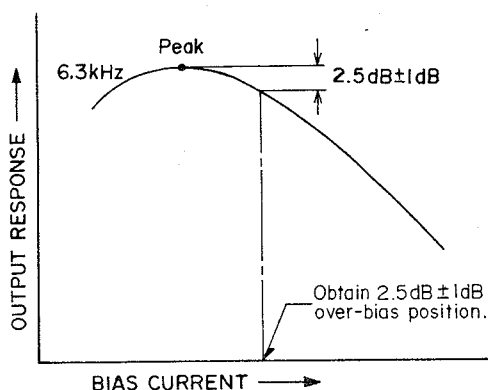
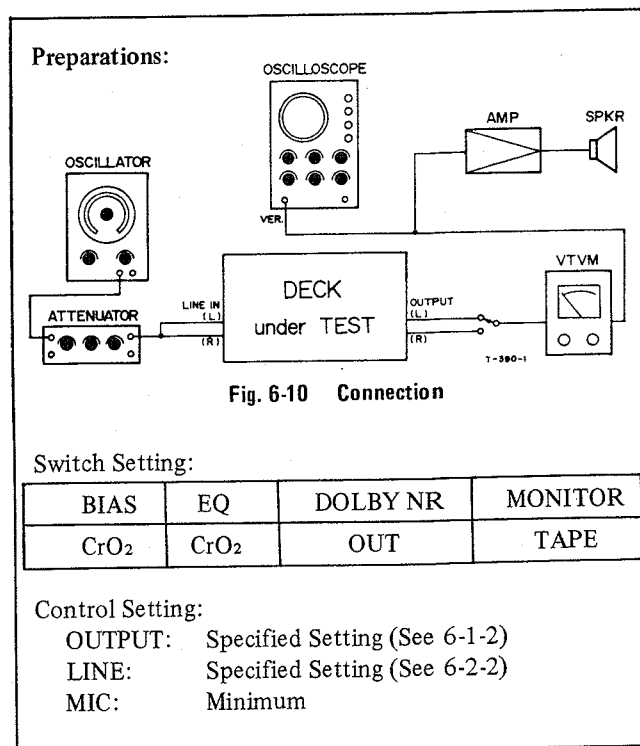


Fig. 6-11 Bias Adjustment



6-3-3. RECORD LEVEL SETTING

CrO₂

7. Load a TEAC MTT-506 test tape, set the BIAS/EQ switches to the CrO₂ position and DOLBY NR switch OUT.
8. Apply and record a 400 Hz test signal at -12 dB (195 mV).
9. During simultaneous tape monitoring (playing), adjust the R16/R26 to obtain -8 dB (300 mV) OUTPUT Level.

NORMAL

10. Repeat the above "CrO₂" procedure 1 and 2, with the following exceptions.
 BIAS/EQ switches: NORMAL
 Test tape: MTT-501
11. During simultaneous tape monitoring (playing), check that the OUTPUT Level is within $-8 \text{ dB} \pm 1 \text{ dB}$ (275 mV to 346 mV).

6-3-4. DISTORTION CHECKS

Specifications:

- CrO₂: 2.2% or less
- NORMAL: 2.5% or less

CrO₂

1. Load a TEAC MTT-506 test tape.
2. Apply and record a 400 Hz test tone at -12 dB (195 mV).
3. Rewind and play this recorded section.
4. Read the indicated value on the distortion analyzer.

NORMAL

5. Repeat the "CrO₂" procedure, with the following exceptions.

BIAS/EQ switches: NORMAL
Test tape: MTT-501

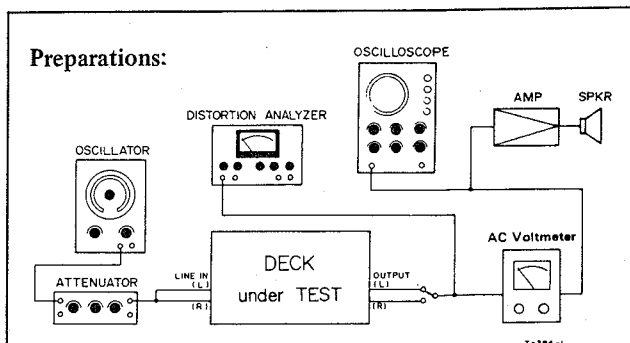


Fig. 6-12 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
CrO ₂	CrO ₂	OUT	TAPE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)
LINE: Specified Setting (See 6-2-2)
MIC: Minimum

6-3-5. FREQUENCY RESPONSE -OVERALL-

CrO₂ Tape

1. Connect the deck and the test equipments as shown in Fig. 6-10.
2. Load a TEAC MTT-506 test tape.
3. Apply and record a test signal at -42 dB (6.15 mV).
4. With the simultaneous record/playback function, make sure the readings on the AC voltmeter are within the response limits.
5. In case of any deviation in the high frequency range of the response limits, clean the heads and do the L104/L204.

NORMAL Tape

6. Repeat the "CrO₂" procedure, with the following exceptions.

BIAS/EQ switches: "NORMAL" position
Test tape: MTT-501

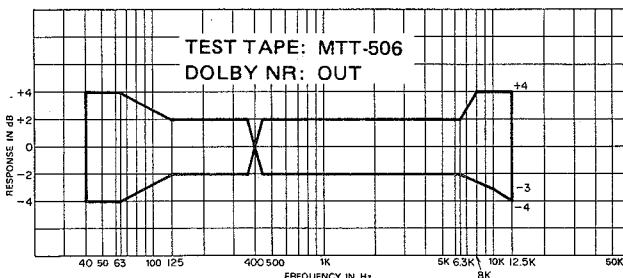
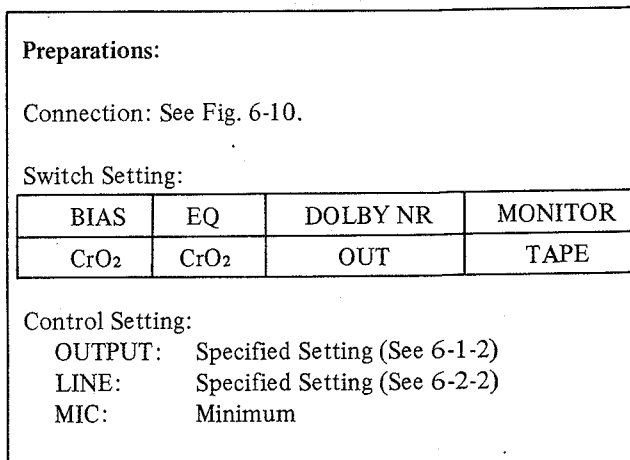


Fig. 6-13 Overall Frequency Response Limits (for BIAS/EQ:CrO₂)



Preparations:

Connection: See Fig. 6-10.

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
CrO ₂	CrO ₂	OUT	TAPE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)
LINE: Specified Setting (See 6-2-2)
MIC: Minimum

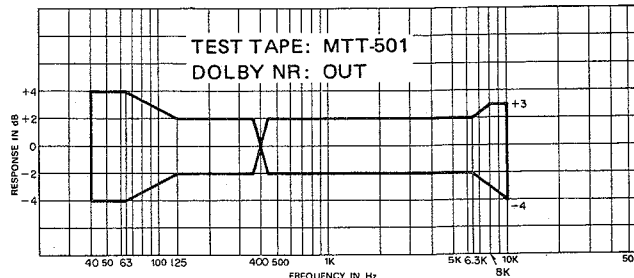


Fig. 6-14 Overall Frequency Response Limits (for BIAS/EQ:NORMAL)

6-3-6. SIGNAL TO NOISE RATIO – OVERALL –

Specifications:

CrO₂: 45 dB (min.)
 NORMAL: 44 dB (min.)

CrO₂

1. Load a TEAC MTT-506 test tape.
2. Place the deck in the record mode for a few seconds with no signal applied.
3. Rewind and play this recorded (erased) section.
4. Read the indication on the AC Voltmeter.
5. Compare the output reading to the specified output level (–5 dB or 436 mV).
6. A difference of 45 dB or more is required.

NORMAL

7. Repeat the “CrO₂” procedure, except use the TEAC MTT-501 test tape and set BIAS/EQ switches to NORMAL position.
8. A difference of 44 dB or more is required.

Preparations:

Connection: See Fig. 6-5.

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
CrO ₂	CrO ₂	OUT	TAPE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)
 LINE: Specified Setting (See 6-2-2)
 MIC: Minimum

6-3-7. ERASE EFFICIENCY

Specification: 65 dB (min.)

NOTE: To measure erase efficiency, a 1 kHz narrow band-pass filter should be used. The test signal delivered from the AF oscillator should be tuned to the filter used.

Numbers in parentheses correspond to steps in Fig. 6-16.

1. Load a TEAC MTT-506 test tape.
2. Apply and record a 1 kHz signal at +1 dB (0.869 V) for several seconds. (1)
3. Rewind the tape to the mid-point of the recording and remove the signal from the LINE IN jacks. (2)
4. Place the deck in the record mode and record through this previously recorded portion with no input signal applied. (3)
5. Rewind the tape to the starting point of the 1 kHz signal recorded portion (4)
6. Play the tape and read the indication on the AC Voltmeter to obtain the output level of both the unerased portion and the erased portion of the recorded section (5)
7. Measure the output level differences between the 2 portions.
8. A 65 dB difference or more is required.

Preparations:

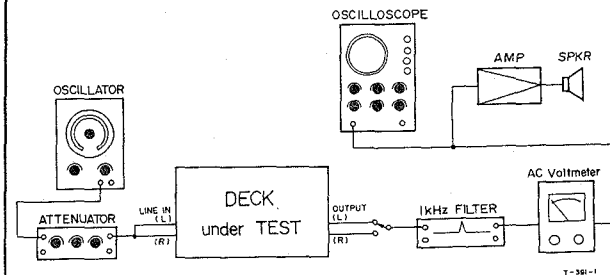


Fig. 6-15 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
CrO ₂	CrO ₂	OUT	TAPE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)
 LINE: Specified Setting (See 6-2-2)
 MIC: Minimum

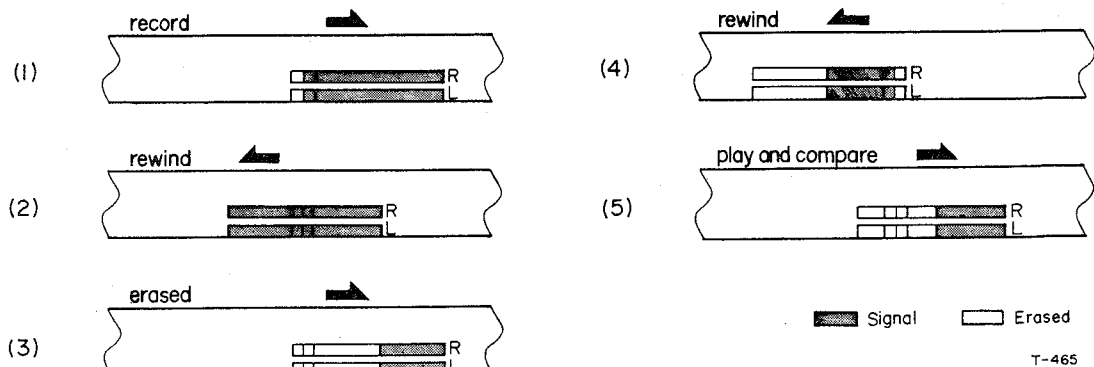


Fig. 6-16 Erase Efficiency Check Procedure

6-3-8. CHANNEL SEPARATION

Specification: 30 dB (min.)

NOTE: To check channel separation (cross talk between channels), a 1 kHz narrow bandpass filter should be used. The test signal delivered from an AF oscillator should be tuned to the filter used.

Numbers in parentheses correspond to steps in Fig. 6-18.

1. Load a TEAC MTT-506 test tape. (1)
2. Apply a 1 kHz test tone at -9 dB (275 mV) into the left channel. (2)
3. Place the deck in the record mode for about 30 seconds. (3)
4. Rewind the tape to the starting point of recording. (4)
5. Play the tape and measure the output level differences between the left and right channels (5)
6. A 30 dB difference or more is required.

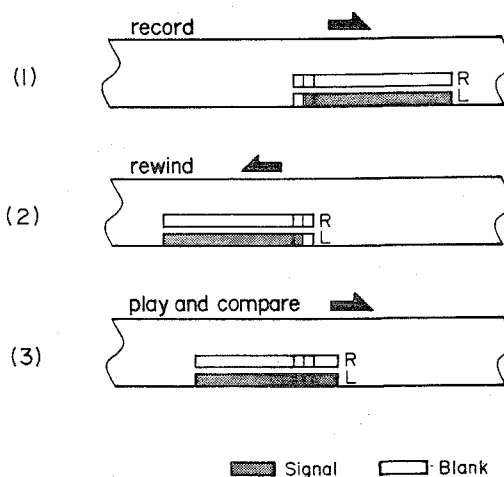
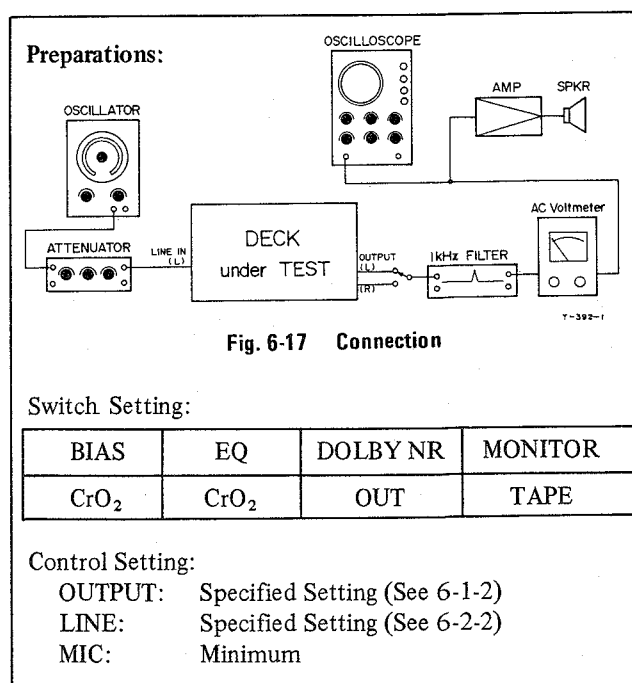


Fig. 6-18 Channel Separation Check Procedure

6-3-9. ADJACENT TRACK CROSSTALK MEASUREMENT

Specification: 40 dB (min.)

NOTE: The tape must be completely erased or demagnetized prior to this procedure.

Numbers in parentheses correspond to steps in Fig. 6-20.

1. Load a TEAC MTT-506 test tape.
2. Apply a 125 Hz test signal at -9 dB (275 mV).
3. Place the deck in the record mode for about 30 seconds. (1)
4. Rewind the tape to the starting point of recording. (2)
5. Play the tape and measure the output level of the recorded portion. Note this reading for temporary reference level for the following measurements. (3)
6. Remove the test tape, turn it over and replace it in the deck. (4)
7. Play the tape back and read the output level. (5)
8. Get the difference between this reading and the reading previously measured for the 125 Hz signal.
9. A 40 dB difference or more is required.

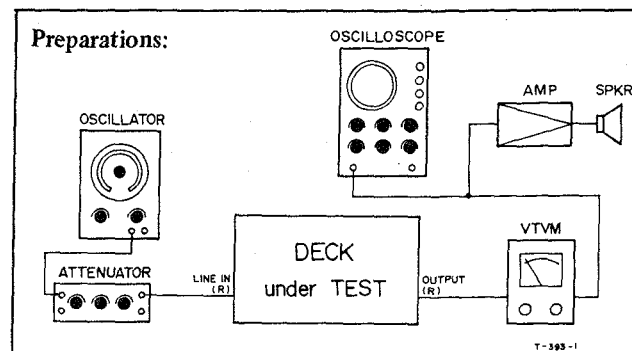
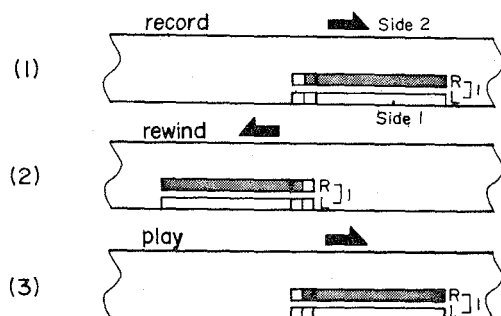


Fig. 6-19 Connection

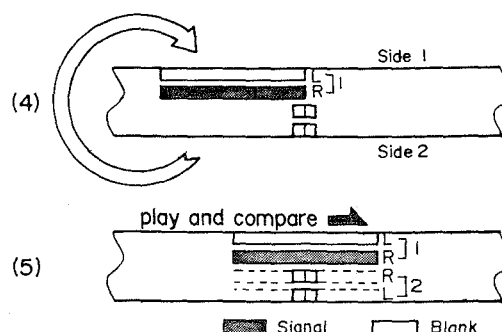
Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
CrO ₂	CrO ₂	OUT	TAPE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)
LINE: Specified Setting (See 6-2-2)
MIC: Minimum

Fig. 6-20 Adjacent Track Crosstalk Measurement Procedure



Signal Blank

T-466

6-3-10. DOLBY NR EFFECT MEASUREMENT

Specifications:

Variation from reference at 1 kHz: 3 dB to 8 dB
 Variation from reference at 10 kHz: 8 dB to 12 dB

1. Load a TEAC MTT-506 test tape.
2. Apply and record a 1 kHz signal at -32 dB (19.5 mV).
3. Rewind and play this recorded section.
4. During playback, read the indication on the AC Voltmeter and note it for temporary reference level for the following measurement.
5. Set the DOLBY NR switch to IN.
6. Ensure the reading reduces 3 dB to 8 dB from the reference level.
7. Apply and record a 10 kHz signal at -42 dB (6.15 mV) with DOLBY NR to OUT.
8. In the same manner as step 3 to 6, ensure the reading reduces 8 dB to 12 dB when the DOLBY NR Switch is set to IN.

Preparations:

Connection: See Fig. 6-10.

Switch Setting:

BIAS	EQ	DOLBY NR	MONITOR
CrO ₂	CrO ₂	OUT	TAPE

Control Setting:

OUTPUT: Specified Setting (See 6-1-2)
LINE: Specified Setting (See 6-2-2)
MIC: Minimum

6.4. ADJUSTMENT LOCATION

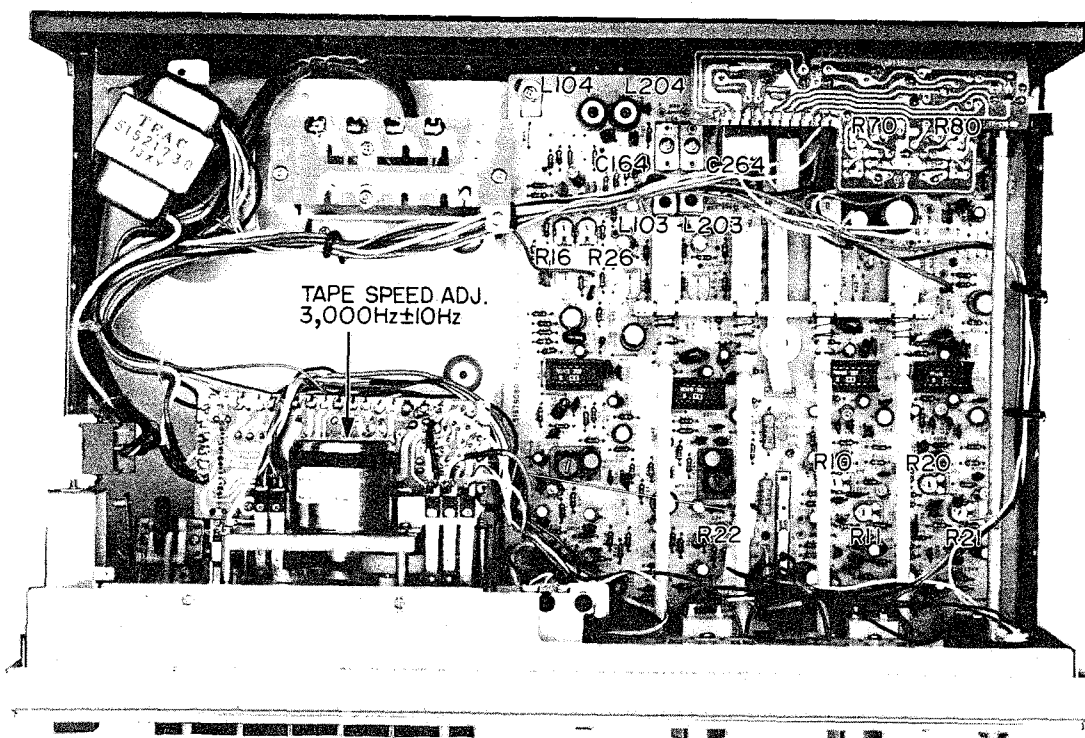


Fig. 6-21 Adjustment Location

T-1749

R10/R20	Playback Level
R11/R21	Playback Frequency Response
R70/R80	Meter Calibration
R16/R26	Record Level
C164/C264	Bias Adjustment
L103/L203	Bias Trap
L104/L204	Record Frequency Response

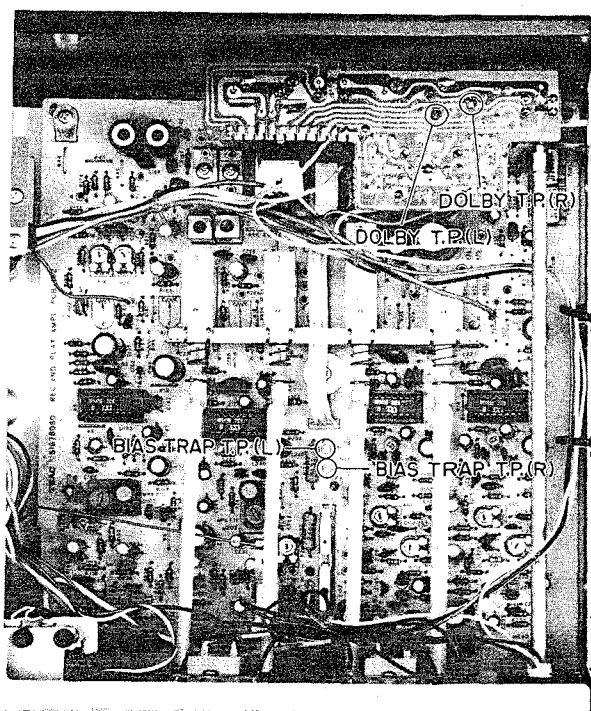
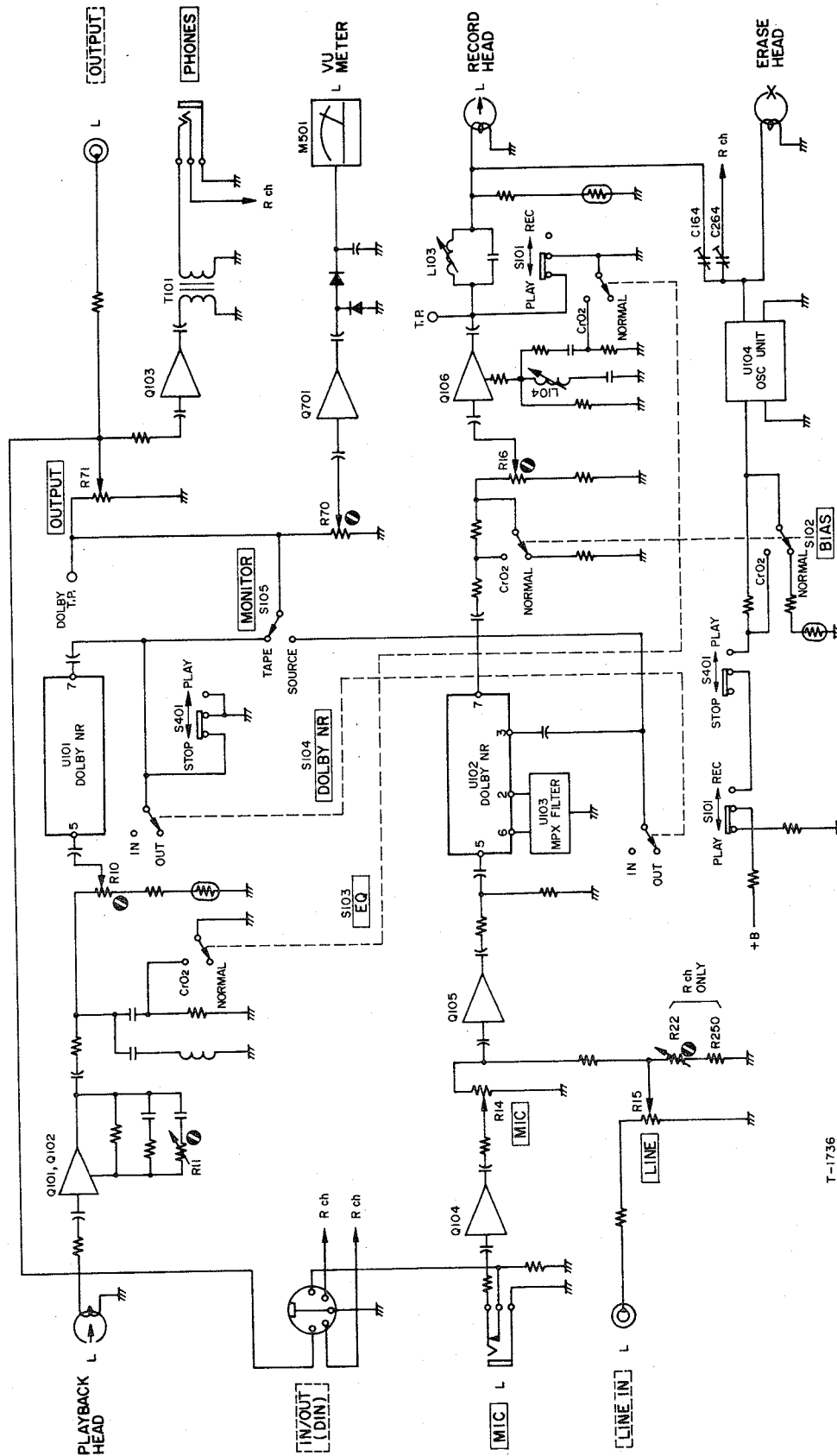


Fig. 6-22 Test Point Location

T-1750

7. BLOCK DIAGRAM

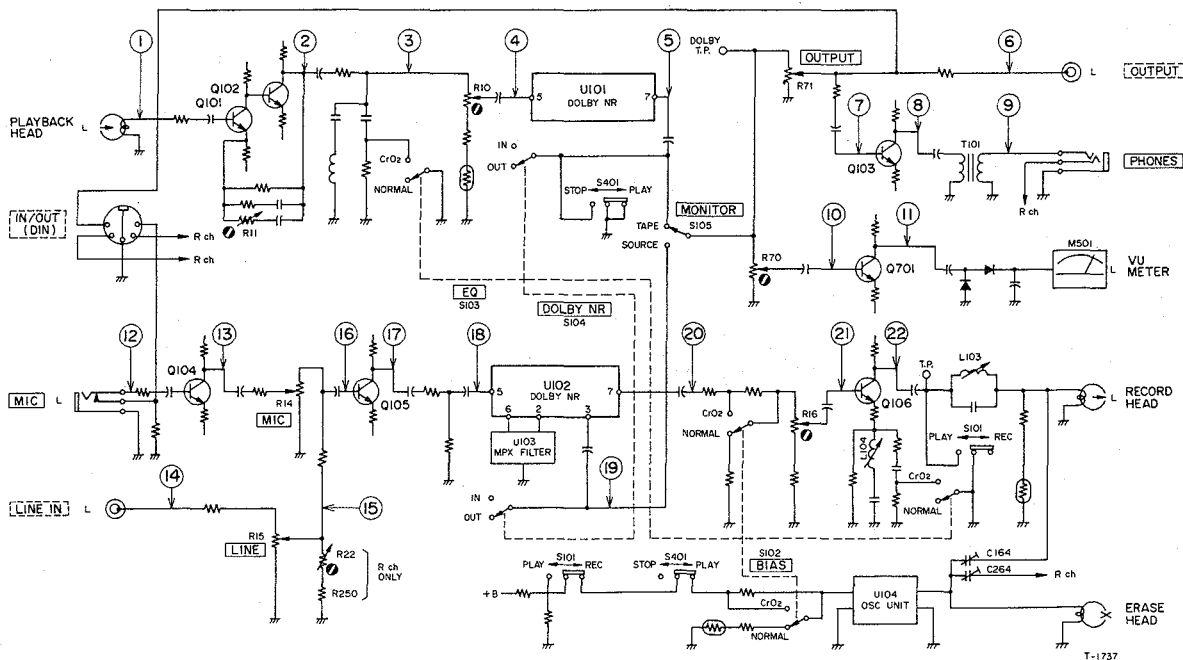


T-1736

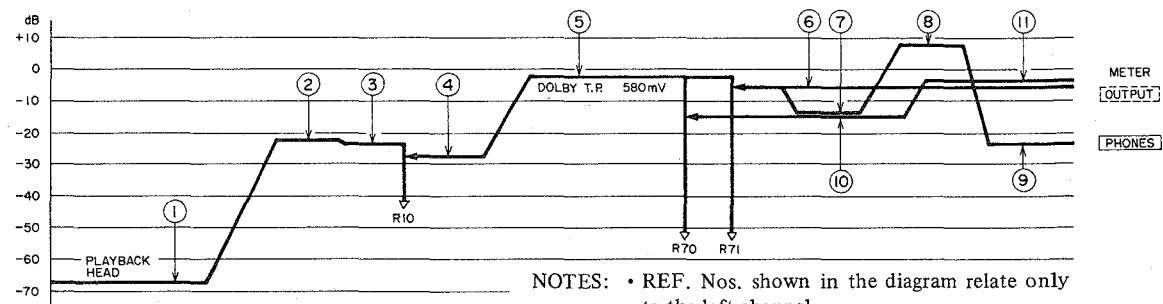
NOTE: REF. Nos. shown in the diagram relate only to the left channel.

Fig. 7-1

8. LEVEL DIAGRAM

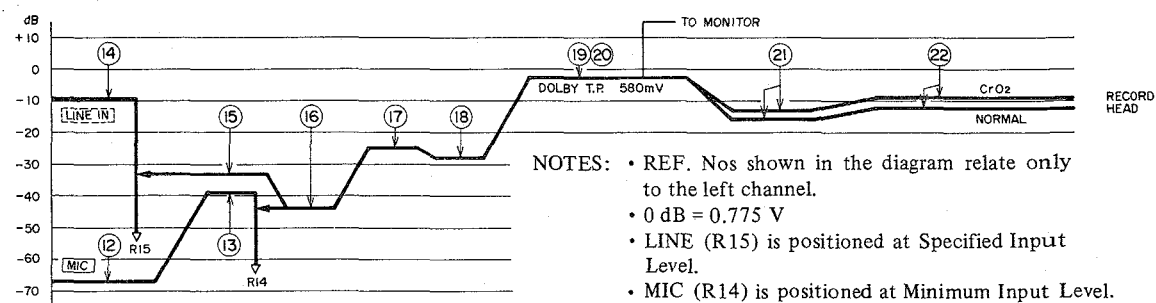


PLAYBACK SYSTEM



- NOTES:
- REF. Nos. shown in the diagram relate only to the left channel.
 - 0 dB = 0.775 V
 - OUTPUT control (R71) is positioned at Specified Output Level.
 - Each level given in the diagram shows values during playback with MIT-150 Test Tape (Dolby tone).

RECORDING SYSTEM



- NOTES:
- REF. Nos. shown in the diagram relate only to the left channel.
 - 0 dB = 0.775 V
 - LINE (R15) is positioned at Specified Input Level.
 - MIC (R14) is positioned at Minimum Input Level.
 - Each level given in the diagram shows values when a 400 Hz Specified Input Level is applied.

Fig. 8-1

9. VOLTAGE AND FREQUENCY SETTING

a. VOLTAGE SELECTOR SETTING PROCEDURE (FOR GENERAL EXPORT MODELS)

First make sure the AC power cord is disconnected from the AC outlet or power source.

1. Remove the top cover of the deck by removing 2 screws from each side of the deck and lifting off the cover.
2. Locate the voltage selector (shown in the Figure) at the right side of the power transformer.
3. Loosen the 2 screws in the shorting bar and move the bar so that it shorts across the terminals marked with the desired AC voltage (100, 117, 220, or 240).
4. After the bar is set to the desired position, tighten the screws.
5. Replace the top cover of the deck.

NOTE: The voltage selection setting can be visually checked without removing the top cover by looking through the cut out slits in the bottom cover of the deck.

b. AC POWER LINE FREQUENCY ADAPTATION

Since the A-300 employs a DC Servo Motor, 50 Hz or 60 Hz operation is permitted without power line frequency adaptation.

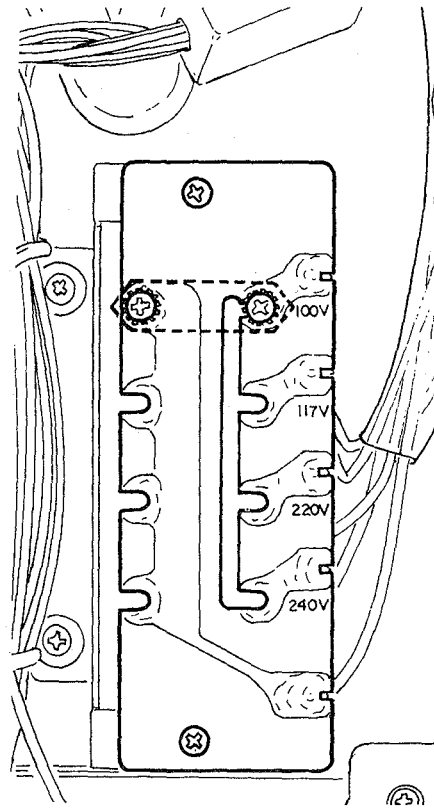


Fig. 9-1 Voltage Selector Setting

A-300

Stereo Cassette Deck with Dolby System

TEAC

TEAC CORPORATION

3-7-3 NAKA-CHO MUSASHINO TOKYO PHONE (0422) 53-1111

TEAC CORPORATION OF AMERICA

7733 TELEGRAPH ROAD MONTEBELLO CALIFORNIA 90640 PHONE (213) 726-0303

TEAC AUSTRALIA PTY., LTD.

165-167 GLADSTONE STREET SOUTH MELBOURNE VICTORIA 3205 PHONE 699-6000

PRINTED IN JAPAN 0379H2.0D-3062A

TEAC®

PARTS LIST

A-300

Stereo Cassette Deck with Dolby* System



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PARTS ORDERING INFORMATION

Spare parts are available through your nearest TEAC Authorized Service Center or directly from the TEAC office, the address of which is printed on the back cover. When ordering parts, always include the following information:

- | | |
|--------------|--------------------|
| 1. MODEL | 4. DESCRIPTION |
| 2. REF. NO. | 5. UNIT SERIAL NO. |
| 3. PARTS NO. | 6. MANUAL CODE NO. |

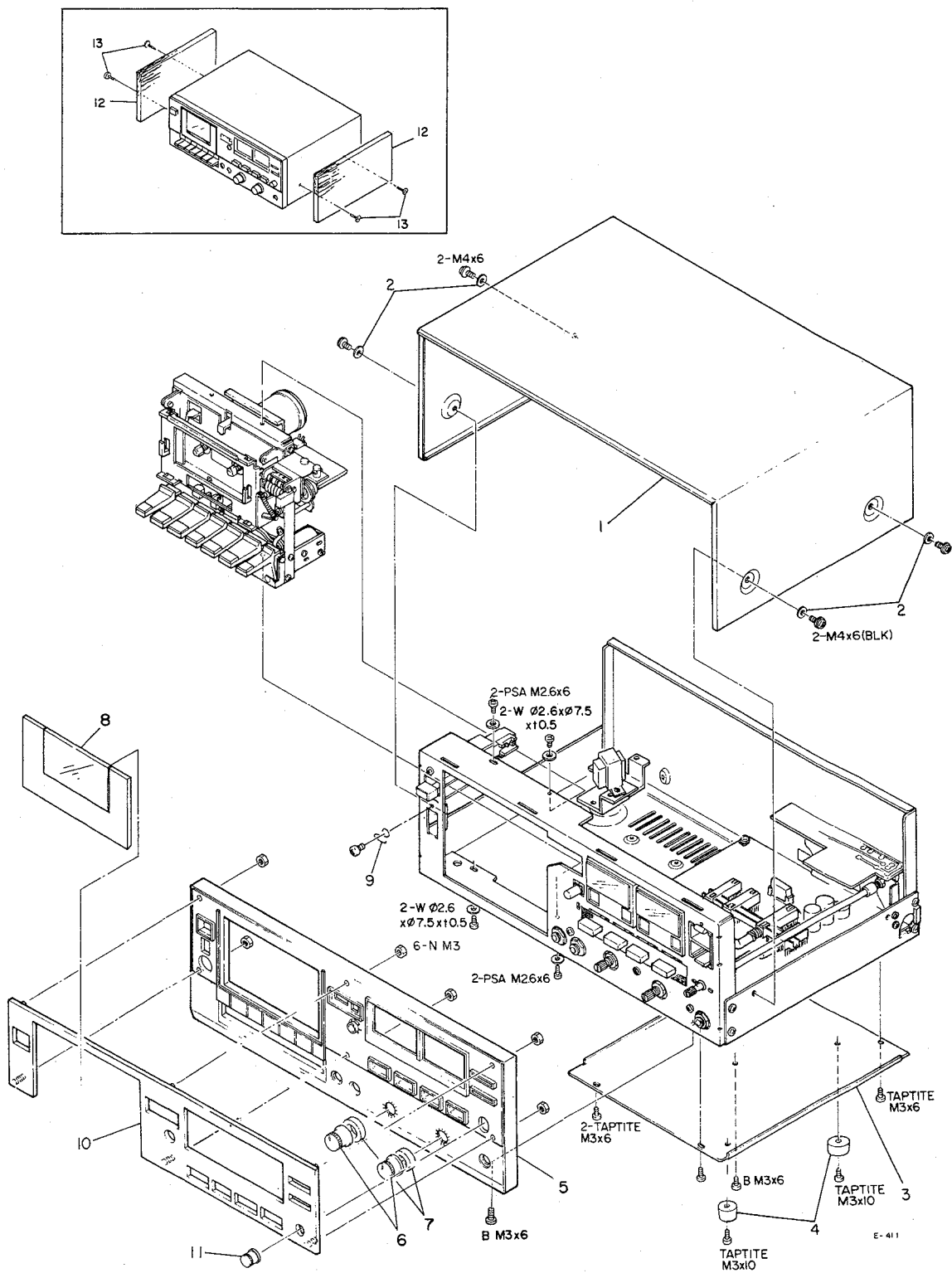
NOTICE REGARDING PARTS ORDERS

1. Do not order by only REF. NO.
2. In some instances, individual minor parts are not available. In this case, the entire assembly, including the part requested, will be sent to you.
3. Parts are identical between different models with the exceptions as coded by the designations in the REMARKS column.
4. PC Boards shown viewed from foil side.
5. Parts marked with * require longer delivery time than regular parts.

TEAC CORPORATION

1. EXPLODED VIEWS AND PARTS LIST

EXPLODED VIEW-1

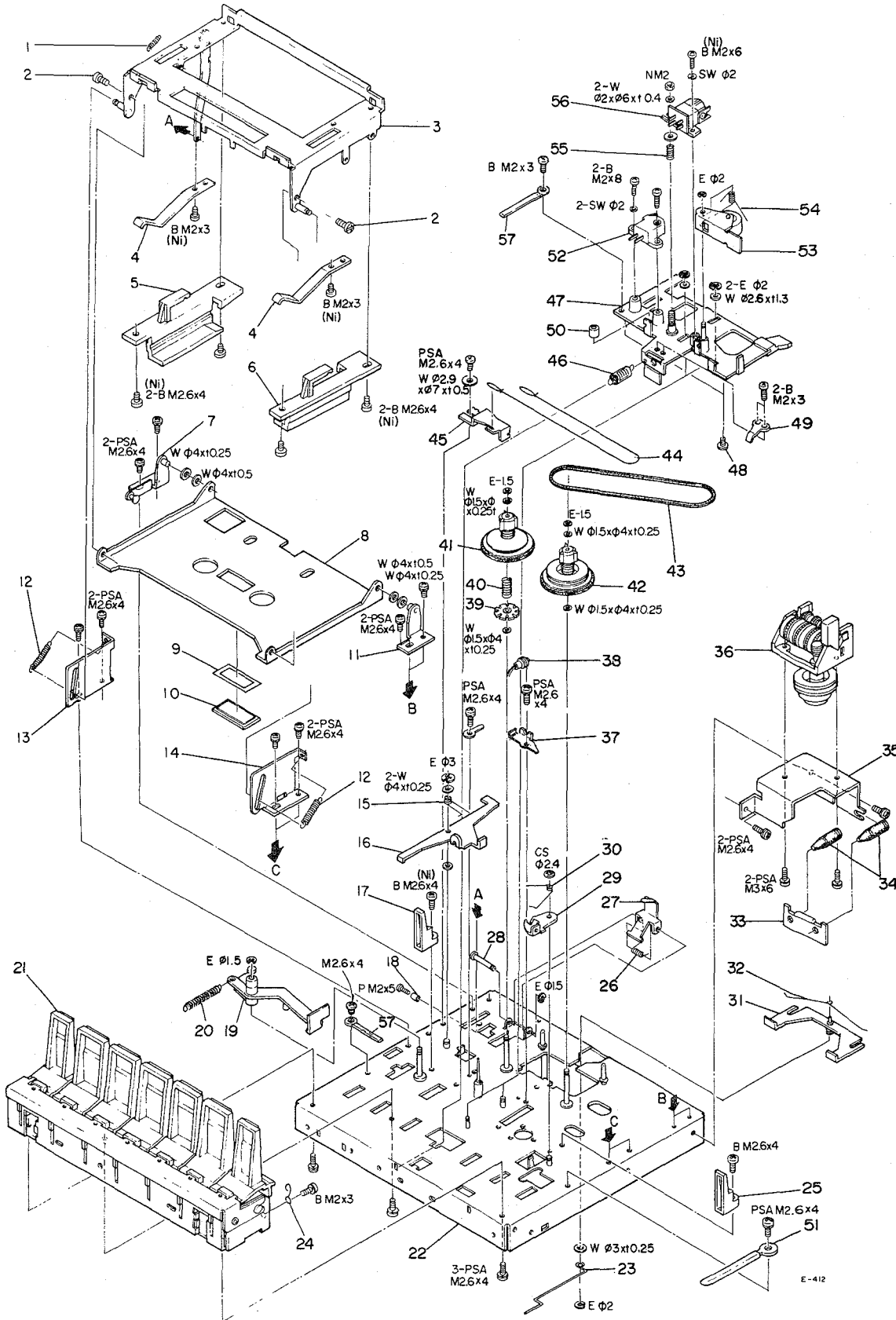


REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1 - 1	*55522020	Cover, Top	All except LIMITED AREA LIMITED AREA
1 - 2	*55800050	Washer, Fiber	
1 - 3	*55522010	Cover, REC/PLAY PCB	
	*55522700	Cover, REC/PLAY PCB	U.S.A., CANADA, LIMITED AREA GENERAL EXPORT, EUROPE AUSTRALIA, U.K.
1 - 4	*55344320	Foot	
1 - 5	*55022100	Panel Assy, A	
	*55022110	Panel Assy, B	U.S.A., CANADA, LIMITED AREA GENERAL EXPORT, EUROPE AUSTRALIA, U.K.
1 - 6	55346430	Knob, B	
1 - 7	55346440	Knob, C	
1 - 8	55031831	Cover Assy, Cassette; A	U.S.A., CANADA, LIMITED AREA GENERAL EXPORT, EUROPE AUSTRALIA, U.K.
	55031841	Cover Assy, Cassette; B	
1 - 9	*55241240	Spring, Earth	
1 - 10	*55523500	Panel, A	U.S.A., CANADA, LIMITED AREA GENERAL EXPORT, EUROPE AUSTRALIA, U.K.
	*55523510	Panel, B	
1 - 11	55045021	Knob, Var. Res.; C	
1 - 12	*55131920	Board, Side	LIMITED AREA
1 - 13	*55045490	Screw Assy, C	LIMITED AREA

INCLUDED ACCESSORIES

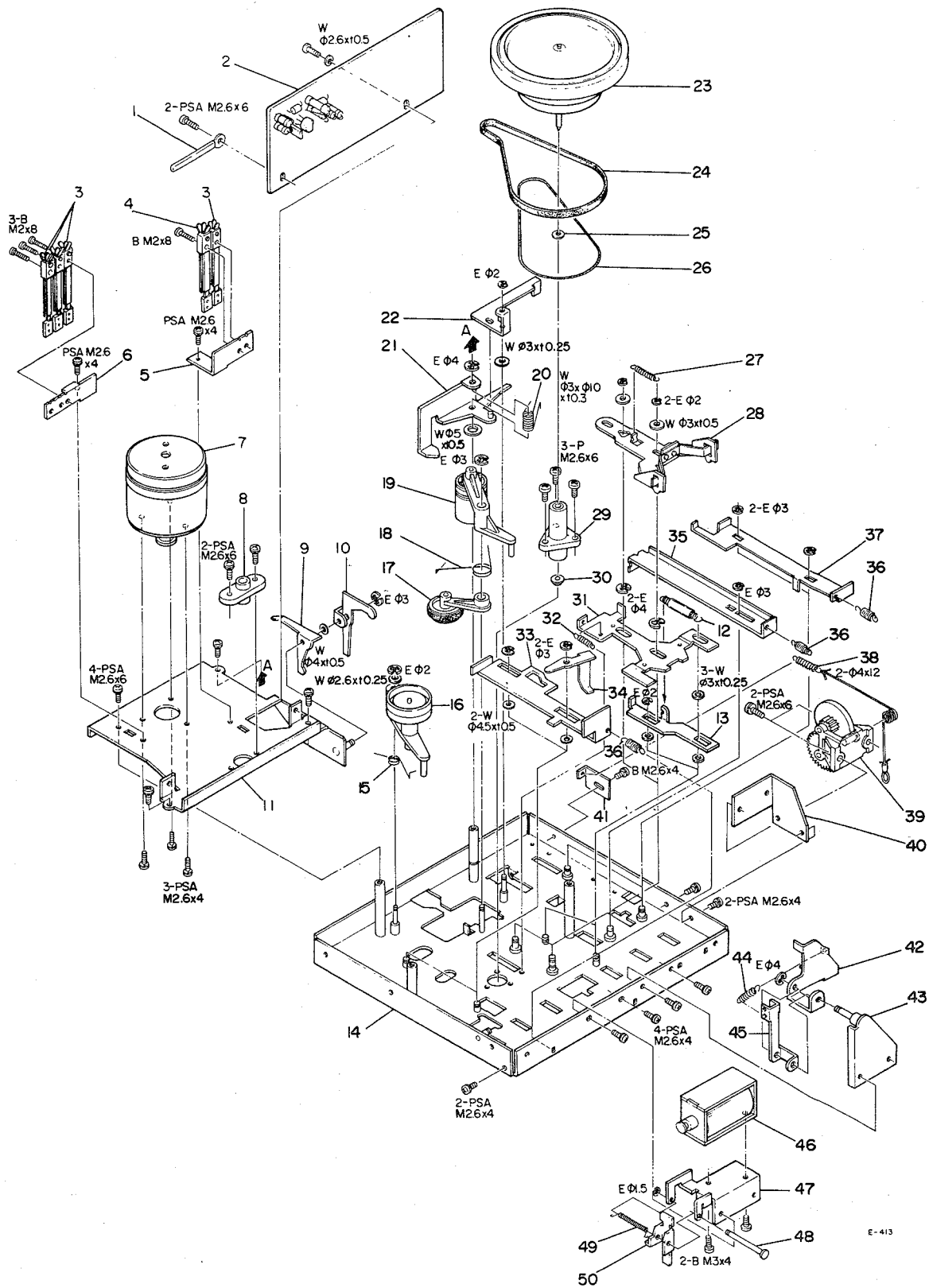
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	*51280650	Cord, Input-output Connection	U.S.A., CANADA All except U.S.A., CANADA
	*51013450	Information Supplement, Cassette	
	*51014950	Information Supplement, Cassette	
	*51016290	A-300 Owner's Manual	U.S.A. All except U.S.A.
	*51016280	A-300 Owner's Manual	

EXPLODED VIEW-2



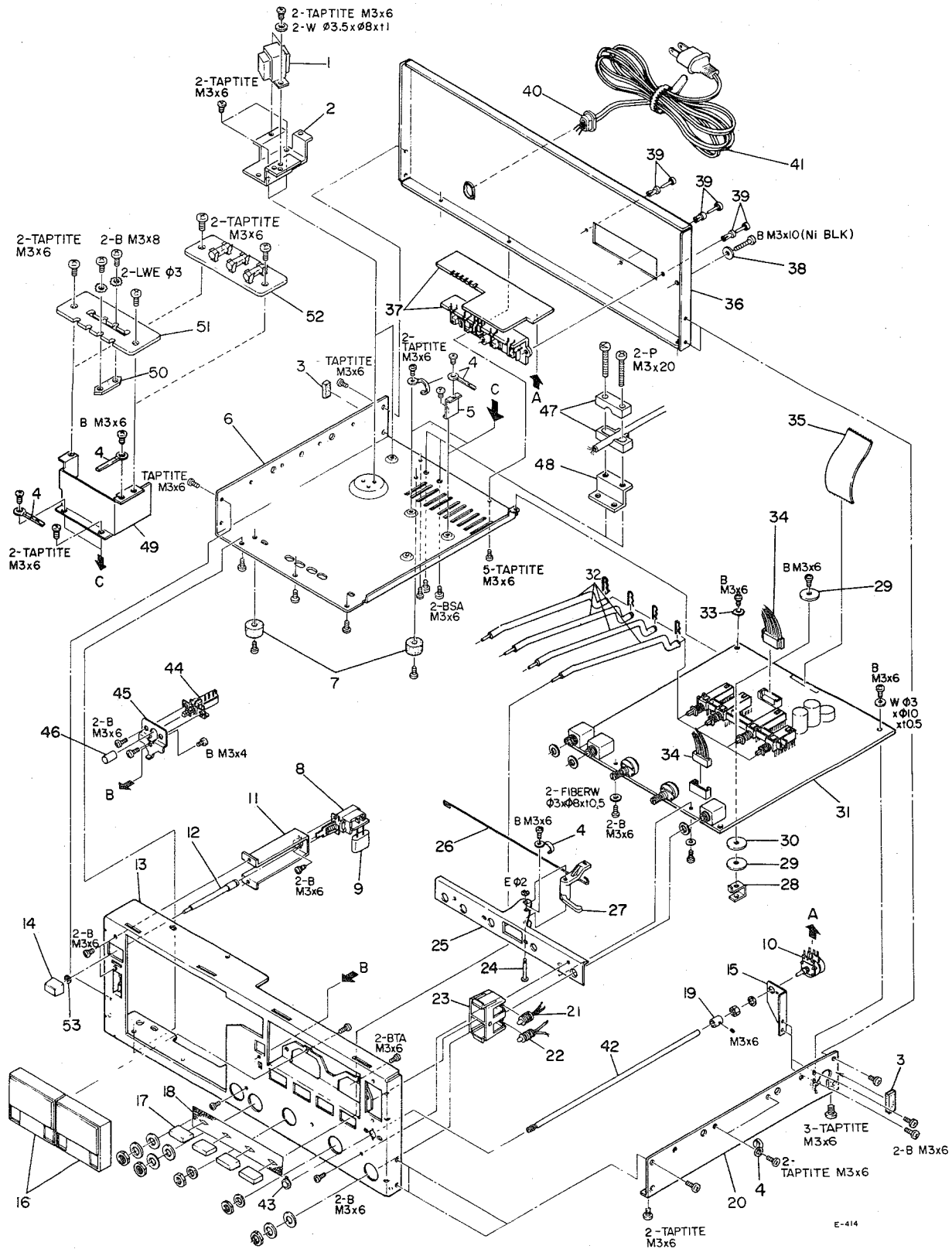
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
2 - 1	*55203380	Spring, Rock	
2 - 2	*55810570	Screw, Cassette Holder	
2 - 3	*55044763	Holder Assy, Cassette	
2 - 4	55550870	Spring, Plate	
2 - 5	55344511	Cassette Guide, Left	
2 - 6	55344501	Cassette Guide, Right	
2 - 7	*55044780	Bracket Assy, Holder; B	
2 - 8	*55531770	Holder, Cassette; B	
2 - 9	*55555820	Adhesive Tape	
2 - 10	*55346380	Lens, Cover	
2 - 11	*55044770	Bracket Assy, Holder; A	
2 - 12	*55203370	Spring, Eject	
2 - 13	*55550920	Guide Plate, Holder; B	
2 - 14	*55550910	Guide Plate, Holder; A	
2 - 15	*55203350	Spring, Arm	
2 - 16	*55555830	Arm, Preventing	
2 - 17	55346410	Guide, Cassette; L	
2 - 18	*55446980	Collar, Stopper	
2 - 19	*55331740	Arm, Tension	
2 - 20	*55242080	Spring, Tension	
2 - 21	55021644	Button Assy	
2 - 22	55022091	Chassis Assy, Mechanism	
2 - 23	*55203340	Rod, Brake Actuating	
2 - 24	*55203420	Clamper, Cord	
2 - 25	*55344440	Guide, Cassette	
2 - 26	*55203490	Spring, Preventing; A	
2 - 27	*55550811	Safety Lever, C	
2 - 28	*55446560	Shaft, Safety Lever	
2 - 29	*50846432	Plate, Pause Lock	
2 - 30	*50845502	Spring, Pause Lock	
2 - 31	*55044722	Plate Assy, Brake	
2 - 32	*55203330	Spring, Brake	
2 - 33	*51685490	PCB Assy, Reed Switch	
	*51675490	PCB, Reed Switch	Part of 2 - 33
	51380060	Reed Switch	Part of 2 - 33
2 - 34	*55344480	Cushion, Rubber	
2 - 35	*55550710	Bracket, Counter	
2 - 36	55031300	Counter Assy	
2 - 37	*55555810	Bracket, Lamp	
2 - 38	51422010	Lamp	
2 - 39	*55343040	Plate, Friction	
2 - 40	*55242070	Spring, Friction	
2 - 41	55041880	Reel Table Assy, Supply	
2 - 42	55044640	Reel Table Assy, Take-up	
2 - 43	55344470	Belt, Counter	
2 - 44	*55046840	String Assy, Brake	
2 - 45	*55555840	Plate, Adjusting	
2 - 47	55046860	Plate Assy, Head Base	
2 - 48	*55346400	Spacer, Head Base	
2 - 49	*55449760	Plate, Head Base Pressure	
2 - 50	*55344580	Cushion, Button	
2 - 51	*55810380	Clamper, Cord; A	
2 - 52	55696010	Head, Erase	
2 - 53	55044590	Pinch Roller Assy	
2 - 54	55203271	Spring, Pinch Roller	
2 - 55	*55200021	Spring, REC-PLAY Head	
2 - 56	55696121	Head, REC-PLAY	
2 - 57	*50279870	Clamper, Cord; D	

EXPLODED VIEW-3



REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3 - 1	*55810380	Clamper, Cord; A	
3 - 2	51685630	PCB Assy, MECHANISM	
3 - 3	51350020	Switch, Leaf; 1A	
3 - 4	51350010	Switch, Leaf; 2A	
3 - 5	*55550690	Bracket, Switch; A	
3 - 6	*55556130	Bracket, Switch	
3 - 7	71051260	Motor Assy, DC	
3 - 8	*55342770	Bearing, Flywheel	
3 - 9	*55550670	Lever, Slide Switch	
3 - 10	*55550680	Arm, Record	
3 - 11	*55044630	Plate Assy, Motor	
3 - 12	55203460	Spring, Lever; C	
3 - 13	55551630	Lever, FF; C	
3 - 14	55022090	Chassis Assy, Mechanism	
3 - 15	55203300	Spring, Tension	
3 - 16	55044660	Pulley Assy, Tension	
3 - 17	55044690	Idler Assy, Fast Wind; B	
3 - 18	55203310	Spring, Idler Assy	
3 - 19	*55044670	Idler Assy, A	
3 - 20	*55203360	Spring, Pressure	
3 - 21	*55044751	Arm Assy, Cassette Pressure	
3 - 22	*55550850	Arm, Cassette Pressure; B	
3 - 23	55044610	Flywheel Assy, Capstan	
3 - 24	55344460	Belt, Capstan Drive	
3 - 25	*55500310	Washer, Thrust	
3 - 26	55344160	Belt, Fast Wind	
3 - 27	*55203480	Spring, Lever; D	
3 - 28	*55044710	Lever Assy, Fast Wind	
3 - 29	*55040910	Housing Assy, Capstan	
3 - 30	*55341300	Washer, Oil Retaining	
3 - 31	*55550740	Plate, Brake Actuating	
3 - 32	*55203320	Spring, Lever; B	
3 - 33	*55044731	Lever Assy, Pause	
3 - 34	*55550770	Arm, Pause	
3 - 35	*55550800	Lever, Record	
3 - 36	*55203260	Spring, Lever; A	
3 - 37	*55550820	Lever, Eject	
3 - 38	*55203390	Spring, Damper	
3 - 39	*55044940	Holder Assy, Damper; B	
3 - 40	*55550940	Bracket, Damper	
3 - 41	*55550950	Angle Plate, Spring	
3 - 42	*55550790	Arm, Record; B	
3 - 43	*55044740	Holder Assy, Record Arm	
3 - 44	*55203511	Spring, Record	
3 - 45	*55551990	Arm, Record; C	
3 - 46	55044811	Solenoid	
3 - 47	*55551001	Bracket, Solenoid	
3 - 48	*55446650	Shaft, Release Arm; A	
3 - 49	*55203430	Spring, Release Arm	
3 - 50	*55551020	Arm, Release; B	

EXPLODED VIEW-4



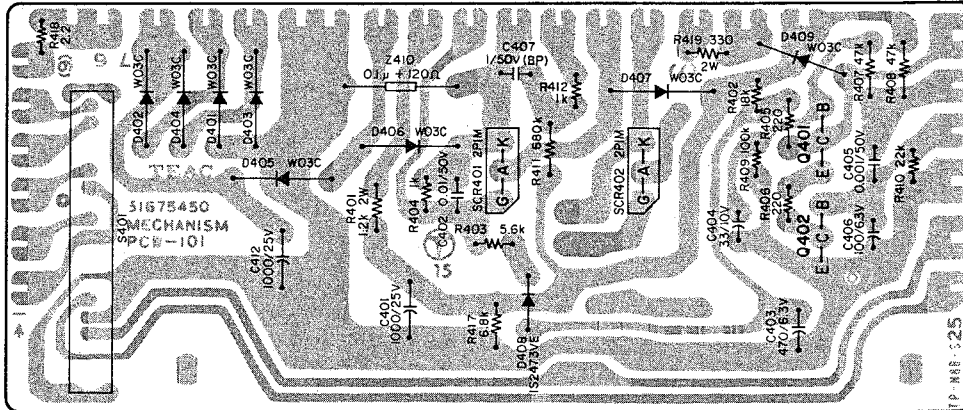
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 1	51521700	Transformer, Power	U.S.A. CANADA EUROPE, AUSTRALIA, U.K. GENERAL EXPORT, LIMITED AREA
	51521710	Transformer, Power	
	51521720	Transformer, Power	
	51521730	Transformer, Power	
4 - 2	*55555871	Bracket, Transformer	U.S.A., CANADA, AUSTRALIA All except LIMITED AREA LIMITED AREA
4 - 3	*55550550	Cushion	
4 - 4	*55810380	Clamper, Cord; A	
4 - 5	*55556040	Bracket, Clamper	
4 - 6	*55521990	Chassis, Bottom	U.S.A. CANADA EUROPE, U.K. GENERAL EXPORT, LIMITED AREA AUSTRALIA
	*55522690	Chassis, Bottom	
4 - 7	*55344320	Foot	
4 - 8	51340370	Switch, Power	
	51340180	Switch, Power	U.S.A. CANADA EUROPE, U.K. GENERAL EXPORT, LIMITED AREA AUSTRALIA
	51340440	Switch, Power	
	51340360	Switch, Power	
4 - 9	50529060	Spark Killer, 0.033 mfd + 120 ohm 125V AC	U.S.A. CANADA EUROPE, U.K. GENERAL EXPORT, LIMITED AREA AUSTRALIA
	50529110	Spark Killer, 0.033 mfd + 120 ohm 250V AC	
	51890010	Spark Killer, 4700 pfd MAX PME271M547	
	50529070	Spark Killer, 0.01 mfd + 300 ohm 400V AC	
4 - 10	51502000	Var. Res., 20 k ohm - A x 2	Part of 4 - 37
4 - 11	*55550611	Bracket, Power Switch	
4 - 12	*55344221	Rod, Power Switch	
4 - 13	*55510191	Chassis, Front	
4 - 14	55344620	Button, D	Part of 4 - 31
4 - 15	*55551470	Bracket, Var. Res.	
4 - 16	51650410	Meter, VU	
4 - 17	55344610	Button, C	
4 - 18	*55552170	Mask, Switch	All except EUROPE, U.K.
4 - 19	*55447100	Collar, Var. Res.	
4 - 20	*55531711	Chassis, Right	
4 - 21	51420860	Lamp, w/Holder	
4 - 22	51422400	Lamp, w/Holder; B	All except EUROPE, U.K., AUSTRALIA AUSTRALIA GENERAL EXPORT, LIMITED AREA U.S.A., CANADA EUROPE U.K. AUSTRALIA
4 - 23	*55344230	Holder, Lamp	
4 - 24	*55446270	Shaft, Record Lever	
4 - 25	*55532750	Bracket, Record Lever; B	
4 - 26	*55203520	Link, Record Lever	
4 - 27	*55344240	Lever, Record	
4 - 28	*55550591	Bracket, REC AND PLAY AMPL. PCB	
4 - 29	*55800070	Washer	
4 - 30	*55800060	Washer, Fiber	
4 - 31	51688080	PCB Assy, REC AND PLAY AMPL.	
4 - 32	*55346490	Rod, Push Switch; C	
4 - 33	*55555900	Plate, Earth; A	
4 - 34	*50438480	Connector Socket, 6P	
4 - 35	*51274580	Ribbon Wire	
4 - 36	*55522001	Panel, Rear	
4 - 37	*51688120	PCB Assy, IN/OUTPUT	
4 - 38	*55550630	Washer, GND	
4 - 39	*55341180	Push Rivet	
4 - 40	*55300470	Strain Relief, AC Power Cord	
	*55342690	Strain Relief, AC Power Cord	
4 - 41	*51280340	Cord, AC Power	
	*51280750	Cord, AC Power	
	*51280180	Cord, AC Power	
	*51280360	Cord, AC Power	
	*51280310	Cord, AC Power	
4 - 42	*55446870	Shaft, Var. Res.	
4 - 43	*55344520	Adapter, Shaft	
4 - 44	51340740	Switch, Push	
4 - 45	*55551481	Bracket, Push Switch	

(Continued on Page 11)

2-1. REC AND PLAY AMPL. PCB

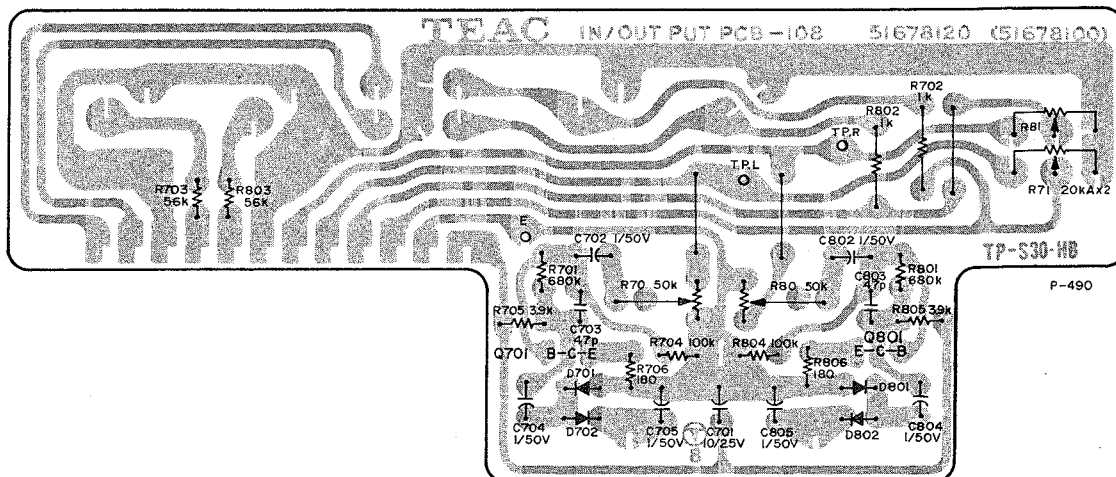


2-2. MECHANISM PCB



P-321

2-3. IN/OUTPUT PCB



P-490

(Continued from Page 9)

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 46	*55342960	Button, Push Switch	EUROPE, U.K. EUROPE, U.K. All except U.S.A., CANADA, AUSTRALIA Part of 4 - 51 GENERAL EXPORT, LIMITED AREA Part of 4 - 51 EUROPE, U.K. Part of 5 - 52 Part of 5 - 52 Part of 5 - 52 Part of 5 - 52
4 - 47	*55340841	Clamper, AC Power Cord	
4 - 48	*55550640	Bracket, Clamper	
4 - 49	*55555950	Bracket	
4 - 50	*55550620	Plate, Selector; A	EUROPE, U.K. EUROPE, U.K. All except U.S.A., CANADA, AUSTRALIA Part of 4 - 51 GENERAL EXPORT, LIMITED AREA Part of 4 - 51 EUROPE, U.K. Part of 5 - 52 Part of 5 - 52 Part of 5 - 52 Part of 5 - 52
4 - 51	*51685481	PCB Assy, VOLTAGE SELECTOR	
	*51675481	PCB, VOLTAGE SELECTOR	
4 - 52	*51685461	PCB Assy, FUSE	
	*51675461	PCB, FUSE	EUROPE, U.K. EUROPE, U.K. All except U.S.A., CANADA, AUSTRALIA Part of 4 - 51 GENERAL EXPORT, LIMITED AREA Part of 4 - 51 EUROPE, U.K. Part of 5 - 52 Part of 5 - 52 Part of 5 - 52 Part of 5 - 52
	*51420870	Holder, Fuse	
	51420880	Fuse, 250 mA (F501, F502)	
	51421860	Fuse, 800 mA (F503)	
4 - 53	*55800030	Washer, Fiber	

2. PC BOARD SECTION (Parts List)

2-1. REC AND PLAY AMPL. PCB

REF. NO.	PARTS NO.	DESCRIPTION
	51688080	PCB Assy
	51678080	PCB
	IC's	
U101, U201	51470400	NE645B
U102, U202	51470400	NE645B
	TRANSISTORS	
Q101, Q201	51450340	2SC900UA
Q102, Q202	51450340	2SC900UA
Q103, Q203	50424860	2SC536G
Q104, Q204	51450340	2SC900UA
Q105, Q205	51450340	2SC900UA
Q106, Q206	50424860	2SC536G
	DIODES	
D101~D104	51431130	1SR34-200HM
D105	51431300	Zener, RD-12FK
	RESISTORS	
All resistors are rated $\pm 5\%$ tolerance, $\frac{1}{4}$ watt and of carbon type unless otherwise noted.		
R101, R201	51815220	47 k ohm
R102, R202	51814700	330 ohm
R103, R203	51814980	2.2 k ohm
R104, R204	51815260	68 k ohm
R105, R205	51814660	220 ohm
R106, R206	51815370	200 k ohm
R107, R207	51815000	5.6 k ohm
R108, R208	51814700	330 ohm
R109, R209	51815480	560 ohm
R110, R210	51815660	3.3 M ohm
R111, R211	51849720	47 k ohm 2%
R112, R212	51814960	3.9 k ohm
R113, R213	51814900	2.2 k ohm
R114, R214	51814940	3.3 k ohm
R115, R215	51815300	100 k ohm
R116, R216	51814820	1 k ohm
R117, R217	51814640	180 ohm
R118, R218	51814640	180 ohm
R119, R219	51814940	3.3 k ohm
R120, R220	51814940	3.3 k ohm
R121, R221	51815200	39 k ohm
R122, R222	51815200	39 k ohm
R123, R223	51814640	180 ohm
R124, R224	51814940	3.3 k ohm
R125, R225	51815340	150 k ohm
R126, R226	51815220	47 k ohm
R127, R227	51815370	200 k ohm
R128, R228	51815400	270 k ohm
R129, R229	51815200	39 k ohm
R130, R230	51815500	680 k ohm
R131, R231	51815260	68 k ohm
R132, R232	51814940	3.3 k ohm
R133, R233	51814640	180 ohm
R134, R234	51815060	10 k ohm
R135, R235	51814820	1 k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R136, R236	51815400	270 k ohm
R137, R237	51815220	47 k ohm
R138, R238	51815220	47 k ohm
R139, R239	51814640	180 ohm
R140, R240	51815060	10 k ohm
R141, R241	51815060	10 k ohm
R142	51815080	12 k ohm
R143, R243	51815140	22 k ohm
R144, R244	51815500	680 k ohm
R145, R245	51815260	68 k ohm
R146, R246	51815080	12 k ohm
R147, R247	51814820	1 k ohm
R148	51815000	5.6 k ohm
R149	51815060	10 k ohm
R150	51815300	100 k ohm
R151, R251	51814640	180 ohm
R152, R252	51814640	180 ohm
R153, R253	51814940	3.3 k ohm
R154, R254	51814940	3.3 k ohm
R155, R255	51814820	1 k ohm
R156, R256	51815300	100 k ohm
R157, R257	51815200	39 k ohm
R158, R258	51815200	39 k ohm
R159, R259	51814640	180 ohm
R160, R260	51814940	3.3 k ohm
R161, R261	51815340	150 k ohm
R162, R262	51815220	47 k ohm
R163, R263	51815370	200 k ohm
R164, R264	51815400	270 k ohm
R165, R265	51849480	4.7 k ohm 2%
R166, R266	51814960	3.9 k ohm
R167, R267	51849320	1 k ohm 2%
R168, R268	51849620	18 k ohm 2%
R169, R269	51815140	22 k ohm
R170, R270	51815400	270 k ohm
R171, R271	51815200	39 k ohm
R172, R272	51815000	5.6 k ohm
R173, R273	51814460	33 ohm
R174, R274	51814820	1 k ohm
R175, R275	51814760	560 ohm
R176, R276	51815300	100 k ohm
R177	50527290	100 ohm 5W Cement
R178	51814340	10 ohm
R179	51847990	220 ohm 2W Non-Flammable
R180	51847990	220 ohm 2W Non-Flammable
R181	51849120	150 ohm 2%
R182	51849240	470 ohm 2%
R183	51814540	39 ohm
R184	51814640	180 ohm
R185	51814640	180 ohm
R186, R286	51814760	560 ohm
R187, R287	51815060	10 k ohm
R250	51815240	56 k ohm

THERMISTORS

RT101, RT201	51431270	10 k ohm S5C14
RT102, RT202	51431330	1.2 k ohm S5C122
RT103	51431320	45 ohm ETTD3F
RT104	51331310	22 ohm S8D-022

REF. NO.	PARTS NO.	DESCRIPTION		
CAPACITORS				
C101, C201	51710040	Polyst.	100 pfd	50V
C102, C202	50554390	Elec.	220 mfd	16V
C103, C203	51715650	Elec.	10 mfd	16V
C104, C204	51722120	Ceramic	100 pfd	50V 10%
C105, C205	51722080	Ceramic	47 pfd	50V 10%
C106, C206	51713460	Elec.	47 mfd	10V
C107, C207	51715590	Elec.	1 mfd	50V (LR)
C108, C208	51703640	Mylar	0.0033 mfd	50V 5%
C109, C209	51703560	Mylar	0.0015 mfd	50V 5%
C110, C210	51703600	Mylar	0.0022 mfd	50V 5%
C111, C211	51718620	Mylar	0.018 mfd	50V 5%
C112, C212	50554390	Elec.	220 mfd	16V
C113, C213	51715590	Elec.	1 mfd	50V (LR)
C114, C214	51713560	Elec.	100 mfd	10V
C115, C215	51722200	Ceramic	470 pfd	50V 10%
C116, C216	51703600	Mylar	0.0022 mfd	50V 5%
C117, C217	51722120	Ceramic	100 pfd	50V 10%
C118, C218	51712900	Elec.	2.2 mfd	50V
C119, C219	51722120	Ceramic	100 pfd	50V 10%
C120, C220	51703700	Mylar	0.0056 mfd	50V 5%
C121, C221	51703680	Mylar	0.0047 mfd	50V 5%
C122, C222	51718660	Mylar	0.027 mfd	50V 5%
C123, C223	51713140	Elec.	10 mfd	16V
C124, C224	51713140	Elec.	10 mfd	16V
C125, C225	51718720	Mylar	0.047 mfd	50V 5%
C126, C226	51719020	Mylar	0.1 mfd	50V 10%
C127, C227	51720240	Dip. Tant.	0.33 mfd	35V
C128, C228	51713140	Elec.	10 mfd	16V
C129, C229	51713140	Elec.	10 mfd	16V
C130	50554390	Elec.	220 mfd	16V
C131, C231	51715650	Elec.	10 mfd	16V
C132, C232	51722120	Ceramic	100 pfd	50V 10%
C133, C233	51713460	Elec.	47 mfd	10V
C134, C234	51715590	Elec.	1 mfd	50V (LR)
C135, C235	51715590	Elec.	1 mfd	50V (LR)
C136, C236	51715590	Elec.	1 mfd	50V (LR)
C137, C237	50554390	Elec.	220 mfd	16V
C138, C238	50554390	Elec.	220 mfd	16V
C139, C239	51715590	Elec.	1 mfd	50V (LR)
C140, C240	51713560	Elec.	100 mfd	10V
C141, C241	51722200	Ceramic	470 pfd	50V 10%
C142, C242	51722120	Ceramic	100 pfd	50V 10%
C143, C243	51713140	Elec.	10 mfd	16V
C144, C244	51722120	Ceramic	100 pfd	50V 10%
C145, C245	51712900	Elec.	2.2 mfd	50V
C146, C246	51703700	Mylar	0.0056 mfd	50V 5%
C147, C247	51703680	Mylar	0.0047 mfd	50V 5%
C148, C248	51718660	Mylar	0.027 mfd	50V 5%
C149, C249	51713140	Elec.	10 mfd	16V
C150, C250	51713140	Elec.	10 mfd	16V
C151, C251	51718720	Mylar	0.047 mfd	50V 5%
C152, C252	51719020	Mylar	0.1 mfd	50V 10%
C153, C253	51720240	Dip. Tant.	0.33 mfd	35V
C154, C254	51713700	Elec.	0.47 mfd	25V (KU)
C155, C255	51712900	Elec.	2.2 mfd	50V
C156, C256	51715630	Elec.	4.7 mfd	25V
C157, C257	51710260	Polyst.	820 pfd	50V 5%
C158, C258	51718660	Mylar	0.027 mfd	50V 5%
C159, C259	51718640	Mylar	0.022 mfd	50V 5%
C160	51700110	Elec.	1000 mfd	35V

REF. NO.	PARTS NO.	DESCRIPTION		
C161	50554420	Elec.	470 mfd	25V
C162	50555580	Elec.	1000 mfd	25V
C163	51712840	Elec.	1 mfd	50V
C165, C265	51710040	Polyst.	100 pfd	50V 5%
VARIABLE RESISTORS				
R10, R20	51502330	Semi-fixed, 20 k ohm - B		
R11, R21	51500940	Semi-fixed, 50 k ohm - B		
R22	51500940	Semi-fixed, 50 k ohm - B		
R16, R26	51500940	Semi-fixed, 50 k ohm - B		
R14, R15	51502270	20 k ohm - A x 2		
TRIMER CAPACITORS				
C164, C264	51700170	150 pfd Max.		
COILS/TRANSFORMER				
L101, L201	50566611	Coil, Choke; 1.2 mH		
L102, L202	50566610	Coil, Choke; 1.2 mH		
L103, L203	50566590	Coil, Trap; 3 mH		
L104, L204	51600420	Coil, Record EQ; 3.6 mH		
T101, T201	51520740	Transformer, Output; 3 k ohm; 8 ohm		
MISCELLANEOUS				
U103, U203	51600400	Filter, Low-pass; 19 kHz		
U104	50400960	OSC Unit, 100 kHz		
J101, J201	51240390	Jack, MIC		
J102	51240400	Jack, PHONES		
S101	51310300	Switch, Slide; 6PDT		
S102~S105	51340830	Switch, Push; 4-gang		
P103, P104	51220100	Connector Plug, 6P		
	51470160	Socket, IC; 16P		
	51274570	Wire		
	51274580	Wire, Ribbon		
	55447500	Pin, Combination		

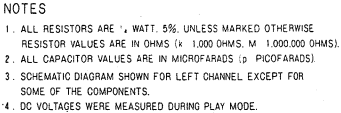
2-2. MECHANISM PCB

REF. NO.	PARTS NO.	DESCRIPTION
	51685630	PCB Assy
	51675450	PCB
TRANSISTORS		
Q401/Q402	50424860	2SC536G
SCR's		
SCR401	51430900	2P1M
SCR402	51430900	2P1M

2-3. IN/OUTPUT PCB

REF. NO.	PARTS NO.	DESCRIPTION
DIODES		
D401~D407	51430890	W03C
D408	50425170	1S2473VE
D409	51430890	W03C
RESISTORS		
All resistors are rated $\pm 5\%$ tolerance, $\frac{1}{4}$ watt and of carbon type unless otherwise noted.		
R401	50527410	950 ohm 2W Metal Film
R402	50571120	18 k ohm
R403	50571000	5.6 k ohm
R404	50570820	1 k ohm
R405, R406	50570660	220 ohm
R407, R408	50571220	47 k ohm
R409	50571300	100 k ohm
R410	50571140	22 k ohm
R411	50571500	680 k ohm
R412	50570820	1 k ohm
R417	50571020	6.8 k ohm
R418	51818080	2.2 ohm Non-Frammable
R419	50527130	330 ohm 2W Metal Film
CAPACITORS		
C401	50555580	Elec. 1000 mfd 25V
C402	50548020	Mylar 0.01 mfd 50V 10%
C403	50554600	Elec. 470 mfd 6.3V
C404	50554240	Elec. 33 mfd 10V
C405	50548320	Mylar 0.001 mfd 50V 10%
C406	50554230	Elec. 100 mfd 6.3V
C407	50559420	Elec. 1 mfd 50V (Bi-Polar)
C412	50555580	Elec. 1000 mfd 25V
MISCELLANEOUS		
S401	51310300	Switch, Slide 6PDT
Z410	50529050	Spark Killer 0.1 mfd + 120 ohm 400V AC

REF. NO.	PARTS NO.	DESCRIPTION
	51688120	PCB Assy
	51678120	PCB
TRANSISTORS		
Q701, Q801	50424860	2SC536G
DIODES		
D701, D801	50422130	1N60
D702, D802	50422130	1N60
CARBON RESISTORS		
All resistors are rated $\pm 5\%$ tolerance and $\frac{1}{4}$ watt.		
R701, R801	50571500	680 k ohm
R702, R802	50570820	1 k ohm
R703, R803	50571240	56 k ohm
R704, R804	50571300	100 k ohm
R705, R805	50570960	3.9 k ohm
R706, R806	50570640	180 ohm
CAPACITORS		
C701	50554040	Elec. 10 mfd 25V
C702, C802	50554540	Elec. 1 mfd 50V
C703, C803	50547420	Dip. Mica 47 pfd 50V 5%
C704, C804	50554540	Elec. 1 mfd 50V
C705, C805	50554540	Elec. 1 mfd 50V
VARIABLE RESISTORS		
R70, R80	51500570	Semi-fixed, 50 k ohm - B
R71, R81	51502000	20 k ohm - A x 2
MISCELLANEOUS		
J501	51260301	Terminal Assy, IN/OUTPUT
	55447500	Pin, T.P. x 3
	51678110	PCB, SEALED



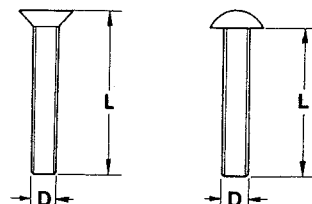
ASSEMBLING HARDWARE CODING LIST

All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted.
ISO screws have the head inscribed with a point as in the figure to the right.



FOR EXAMPLE:

B M 3 x 6
 ----- Length in mm (L)
 ----- Diameter in mm (D) *
 ----- Metric System
 ----- Nomenclature



* Inner dia. for washers and nuts

	Code	Name	Type		Code	Name	Type
MACHINE SCREW	R	Round Head Screw		TAPPING SCREW	BTA	Binding Head Tapping Screw(A Type)	
	P	Pan Head Screw			BTB	Binding Head Tapping Screw(B Type)	
	T	Stove Head Screw (Truss)			RTA	Round Head Tapping Screw(A Type)	
	B	Binding Head Screw			RTB	Round Head Tapping Screw(B Type)	
	F	Flat Countersunk Head Screw		SETSCREW	SF	Hex Socket Setscrew(Flat Point)	
	O	Oval Countersunk Head Screw			SC	Hex Socket Setscrew(Cup Point)	
WOOD SCREW	RW	Round Head Wood Screw			SS	Slotted Socket Setscrew(Flat Point)	
	FW	Flat Countersunk Wood Screw		WASHER	E	E-Ring (Retaining Washer)	
	OW	Oval Countersunk Wood Screw			W	Flat Washer (Plain)	
SEMS SCREW	BSA	Binding Head SEMS Screw(A Type)			SW	Lock Washer (Spring)	
	BSB	Binding Head SEMS Screw(B Type)			LWI	Lock Washer (Internal Teeth)	
	BSF	Binding Head SEMS Screw(F Type)			LWE	Lock Washer (External Teeth)	
	PSA	Pan Head SEMS Screw(A Type)			TW	Trim Washer (Countersunk)	
	PSB	Pan Head SEMS Screw(B Type)		NUT	N	Hex Nut	